Medical Times

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TABLETS • CAPSULES

Editorials

The Pulse of Aortic Regurgitation

BY Corrigan's pulse is generally understood that jerking expansion of the palpated artery followed by a sudden collapse, occurring most characteristically in aortic regurgitation.

We had always supposed that Sir Dominic John Corrigan described this "water-hammer" pulse until occasion arose for us to read the paper which he wrote on "Permanent Patency of the Mouth of the Aorta or Inadequacy of the Aortic Valves" (*Edinburgh Medical and Surgical Journal*, 37:225, 1832). Much to our surprise we failed to find anything in his description answering to the collapsing or receding and jerking pulse of the textbooks, dictionaries, and medical histories. Thus he says:

> "From its singular and striking appearance, the name of *visible pulsation* is given to this beating of the arteries. It is accompanied with *bruit de soufflet* in the ascending aorta, carotids, and subclavians; and in the carotids and subclavians, where they can be examined by the finger, there is felt *frémissement*, or the peculiar rushing thrill accompanying with *bruit de soufflet* each diastole of these vessels . . . The *frémissement*, or rushing thrill, described as easily felt in the subclavians and carotids, can sometimes be felt as fast [far?] as the pulse in the wrist."

Cowper described the mechanism of aortic inadequacy in 1706 (*Phil. Tr. Roy. Soc.* 24:1970, London), but noted only intermittency of the pulse.

Vieussens (*Traité nouveau de la structure et des causes du mouvement natural du cœur*, Toulouse, 1715) wrote an excellent description of the mechanism of aortic regurgitation containing some striking words on the character of the pulse: "very full, very fast, hard, uneven and so strong that the arteries of both arms struck the ends of my fingers like a cord which had been tightly stretched and then violently shaken."

Morgagni published a clear description of the mechanism of aortic inadequacy in 1761 (*De sedibus*), but said nothing about the pulse.

Hodgkin anticipated Corrigan's study of aortic valve inadequacy by several years (*London Gazette*, 3:433, 1828-29), understood that there was a reflux of blood back into the ventricle—although he did not describe this mechanism as well as Cowper, Vieussens and Morgagni—but failed to describe the pulse.

Corrigan, by the way, was unaware of his predecessors' work, and, when reproached about his unfamiliarity with medical literature and history, excused (?) himself by expressing agreement with the sentiment of Bichat: "The living and the dead are my books."

In his superb study of aortic valve inadequacy, Corrigan emphasized three points: 1. visible pulsation of the arteries, 2. *bruit de soufflet*, 3. *frémissement*. He had much to say about the flaccidity of the unfilled vessels during their diastole, which flaccidity, due to the leakage of blood back into the ventricle, accounted, he thought, for the visible pulsations when the ventricle threw blood into the vessels; but he said nothing about a collapsing or receding pulse, or about a jerking character. He saw the visible pulsations, he heard the *bruit*, and he felt the rushing and trembling thrill as far as the pulse in the wrist, but he said nothing about feeling those other things which we associate so definitely with Corrigan's pulse—sudden collapse and a jerking character.

Pursuing the subject further, we find James Hope of St. George's Hospital, London, writing in 1842 (*A Treatise on the Diseases of the Heart*, page 362) as follows: "Dr. Corrigan, who wrote in 1832 on permanent patency of the aortic valves as a supposed new disease, has so completely overlooked this [jerking] pulse as even to state the reverse: 'It rises without any jerk under the finger' (*Dublin Journal of Medical Science*, 10:173-197, November 1, 1836)." Hope

himself, not Corrigan, first described the jerking pulse of aortic regurgitation.

The truth is that Corrigan only partially described the pulse of aortic regurgitation. All other descriptions have been arbitrarily added to what he did say and the entire picture finally ascribed to him as one exercising exclusive prerogatives in this field. The present-day eponymic designation of this pulse is unwarranted. In this case two factors have contributed to the situation described; first, no one seems to have traced and identified the first observer of the collapsing character of the "water-hammer" pulse; and second, the great and just eminence of Corrigan in the Pantheon of Medicine has led most of us to ascribe to him about everything in his particular field. Thus Hope's attempt to compel recognition of his own contribution has been forgotten. Our own attempt to straighten out the matter will probably be futile, for, after all, Corrigan is like a great sun whose light, as we regard him, blinds us to the presence of lesser bodies.

What Medicine Lacks

WHAT more wonderful, what more miraculous than the results frequently seen in our clinics, medical centers and hospitals? What is more impressive than the transformation of a child wrecked by diabetes into a being of strikingly healthy appearance? What is there in the whole world that outstrips our own achievements? Medicine lacks a board of press agents like the late Ivy Lee, Edward L. Bernays, *et. al.*

Those agents never worked on as good a basis.

It is only medicine that stages no build-up program, now the order of the day. Take the publishing field as one example. We see great markets created for books like *Of Time and the River, Anthony Adverse, Gone with the Wind,* and *The Flowering of New England;* next year another colossal book hoax will be staged. The point is that the public must be kept in the habit of reading so that the radio, the movies, television and other competitive forces will not steal everything. The whole book trade participates in this shrewd conspiracy, since all understand how they will be benefited in the long run. The railroads, only a short time ago, were *in extremis;* today, thanks in large measure to a vast, artificially built-up fan organization, they are in high favor and well into the black. The movies, with their moronic fan mobs—a sedulously cultivated tribe—and the auto industry, with its definitely controlled market of private buyers, are sitting pretty.

The best sellers among the books are not Olympian products from the discriminative standpoint of the world's creative art; much of the rolling stock of the railroads is old and dirty and many of their roadbeds deadly; the movies are in the main written and produced for imbeciles; to drive on our automobile highways or in crowded city traffic is to court trauma and even death; but the public is thoroughly sold on all of these things—a public opinion has been created which regards them as indispensable and, in a way, sacred.

Now medicine is really a glorious thing in contrast to this underworld of society's activities. What might not be done to set it above everything in the minds (such as they are) of our people? Not by way of a hoax, but by way of actually raising the level of our civilization.

We attempt to meet our enemies on a ground of good works and high debate: result—we are thoroughly sprayed with poison gas and threatened with a panel system and other things.

Would it not be better strategy to attack the problem in the manner of our Lees and Bernays *as well as* in the high-hat manner so far in vogue?

Were public opinion wholly aligned with us the uplifters and nuisances would have to fold up.

Up to a certain point we must fight with the weapons of the underworld. For this purpose, at present, we lack shock troops.

Commercial Handicaps on Public Health

THE commercial outfits that are doing their best to keep the acid-base status of the American people well over on the alkaline side are not telling their clientele anything about the findings of Rosenthal, to the effect that "It is to be

considered too that most alkaline compounds employed as medicine are water-soluble and in this way they alkalinize the urine. In the alkaline urine carbonates and phosphates are precipitated and this is the reason why patients who take alkalies for a long time void a cloudy urine. If this precipitation of the salts mentioned continues for a certain time—depending on the widely varying rate of precipitation—it may give rise to the formation of urinary calculi."

It is not likely that our highway billboards will ever carry signs reading: Use Binks' Asinine Alkalizer and Be Thrilled by Ureteral Stones.

So, also, it is hardly to be expected that the cigarette moguls will ever broadcast the paper of Arkin and Wagner (Primary Carcinoma of the Lung, *J. A. M. A.* 106:587, February 22, 1936) in which those authors register their belief that inhalation of tobacco smoke may be an important factor in producing chronic irritation with epithelial metaplasia in the bronchi or bronchioles. Ninety per cent of their patients were confirmed smokers. The tar factor here must be reckoned with by us—if not by the advertisers.

Billboards will not be seen this summer displaying such a motto as: Inhale a Package of Sinko (the t is silent) Cigarettes Daily and Grow a Little Epithelial Garden in Your Chest.

The Opium Phase of Tuberculosis Therapy

AT one period in England opium was held in the highest esteem as a "cure" for tuberculosis. This belief was probably brought about by parties primarily interested in the opium traffic. It was the period publicized so effectually by that noted "gintellectual," Thomas de Quincey, through his *Confessions of an English Opium Eater*, which today would be rated as, or suspected of being, a piece of subsidized promotion literature. But the point that we wish to make is that in those days opium may very well have done some good in tuberculosis in so far as it conduced to rest, sedation and narcosis. Perhaps it should be credited with starting the rest cure, now evolved to such an advanced point through artificial pneumothorax, phrenicectomy, and thoracoplasty.

A Sixteenth Century Sanitarian

WE do not ordinarily think of Erasmus as a sanitarian. First comes the scholar, humanist, writer and theologian. But such a civilized man could hardly fail to realize the hygienic and sanitary backwardness of the peoples of Europe of his day. Doubtless he correlated these things in his mind with the general benightedness of the times. The high mortality of the period was due to the low status of public, domestic and personal hygiene, which was held in less regard than in the Middle Ages. "The cities had no drainage, and dwelling-houses, with their floors strewn with rushes and their cesspools as described by Erasmus, were sinks of filth and infection. Froude, at the beginning of his History of England, notes that the growth of the population was very slow, almost stationary, the result of high infantile mortality and the effect of wars and epidemics upon the adult population" (Garrison). Bathing was regarded with superstitious dread, and was held to be chiefly accountable for the prevalence of the "sweating sickness," which was probably a form of influenza.

"One potent factor in this frightful situation was the character of living conditions among all classes during the period. From the unpaved roadway, heaped with garbage and offal pitched from the houses, the pestiferous air swept into the home of rich and poor alike. Elbowing the houses were traders' stalls selling half-decayed food of all sorts, and both houses and stalls were perfect breeding-places for any flying germs of disease. What windows there were hardly served the cause of ventilation since they were never opened. Nor was there any drainage. The mud or wooden houses had dirt floors covered with rushes that were not renewed for months on end. Under this mouldy layer of decaying vegetable matter the filth and refuse of the house accumulated, its odor filling the close rooms."

Erasmus attacked, in particular, the bad ventilation of houses and strongly advocated the installation of windows

that would open and close. He advised that the covering of floors with rushes be done away with, since the rushes absorbed "expectorations, vomitings, the leakage of dogs and men, ale droppings, scraps of fish and other abominations not fit to be mentioned." Erasmus noted that whenever he occupied unventilated rooms he "was sure to take a fever."

This wise man did his part to advance enlightenment on every social and cultural front.

Humanistic Technic

PATIENTS often resent the doctor's apparent indifference to "minor" aches and pains. Minor aches and pains are never minor to the victim. It is altogether likely that one reason why homeopathy was welcomed in its day was because it treated symptoms meticulously. That must have made a great psychologic hit with sick people. The modern scientific doctor is too apt, when a patient tells about the burning sensation on one side of his face, to mutter something about "vasomotor neurosis" and, with a cold manner, to change the subject.

Of course, there must be a judicious union of science and psychology. Homeopathy completely preoccupied itself with the therapy of symptoms—and passed out.

News and Notes

INTERNATIONAL HEALTH CONGRESS SCHEDULED DURING NEW YORK WORLD'S FAIR IN 1939

PLANS are being made for the holding of an International Health Congress during the New York World's Fair in 1939. Advantage will be taken of the fact that hundreds of noted medical specialists and public health authorities, representing many countries, will be visiting New York City at the time of the World's Fair. American and foreign specialists will be asked to deliver addresses on subjects of interest not only to professional groups, but to the general public as well.

The last Health Congress such as the one scheduled for 1939 was held at Atlantic City in 1926. Plans for the 1939 sessions are being perfected by the National Health Council in collaboration with the World's Fair Advisory Committee on Medicine and Public Health, which is headed by Dr. Louis I. Dublin. The program will be related, as much as possible, to the exhibits on medicine and public health that will be on display at the World's Fair; and it is hoped that a permanent American Museum of Hygiene similar to the German Hygiene Museum in Dresden will be established in New York subsequently.

FIGHT AGAINST GONORRHEA MUST FOLLOW CAMPAIGN TO CONTROL SYPHILIS

WITH the campaign to stamp out syphilis now well under way in the United States, a national effort to control the widespread prevalence of gonorrhea is the next step that must be undertaken in the fight against venereal diseases, in the opinion of Dr. William F. Snow, General Director of the American Social Hygiene Association.

The health authorities and the medical profession cannot hope to carry out effectively the necessary practical programs in attacking these diseases, unless the general public clearly understands and fully supports them with adequate appropriations and the active cooperation of individual citizens. Dr. Snow emphasizes this fact in a special number of the JOURNAL OF SOCIAL HYGIENE which reviews the findings of the recent Conference on Veneral Disease Control Work held in Washington, D. C., under the chairmanship of Dr. Thomas Parran, Surgeon General of the United States Public Health Service.

Although the conference in Washington rightly concentrated attention upon syphilis, which is the problem of immediate concern, the public should know that gonorrhea is the next point of attack. It has been estimated that approximately 6,000,000 men, women and children are suffering from syphilis in the United States and that more than 12,000,000 persons have gonorrhea.

Constipation —A TRAINING PROBLEM

MATTHEW N. CHAPPEL, Ph.D.
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New York, N. Y.
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Brooklyn, N. Y.

DURING the past four years, seventy-three cases of chronic constipation have been corrected or materially improved within three weeks, through psychological training. Four others showed little improvement. The investigation of the condition arose out of the belief that neglect practiced by busy people soon results in breaking up the twenty-four hour bowel habit, and formation of the habit at longer intervals; and that only a few days of such practice is necessary to establish the constipated condition.

In the fall of 1932, one of us took a group of seven Columbia University students, all of whom had daily recourse to laxatives, to determine to what extent psychological training would correct their constipation. These students were given daily lectures for two weeks, together with a psychological procedure tending to direct their attention to the normal bowel sensations at the proper time.

The lectures dealt with the manner in which bowel activity is taught to children, the manner in which fear and anxiety produce spastic tension in the colon and intestines, the influence of straining and omission of bowel activity because of lack of time, the part played by advertising in building up a fear of constipation, the influence of cathartics in upsetting the learned rhythm, and the relation between emotion and the activity of the gastro-intestinal tract.

As a special procedure the subjects were instructed to remind themselves of the activity. In the morning, after arising, they remarked to themselves, at ten minute intervals, that they would have a bowel movement after breakfast. This time was chosen for convenience. Any other period of the day might have been adopted.

It was planned to carry the lectures through six weeks. This proved unnecessary for within the first week all of the subjects were having daily bowel activity without the use of artificial aid. The lectures were therefore stopped at the end of two weeks.

Having achieved one bowel movement a day, it was decided to determine if the subjects could learn to have two. The attention was called to the bowel activity in the evening as well as in the morning. No lectures were given at this time but within three days all of the subjects were having bowel activity twice a day.

After maintaining the activity at this level for two weeks, thereby establishing the habit to the point where the daily reminders were unnecessary, two of these subjects attempted to established activity four times a day. This again they effected within three days.

After establishing four movements a day, a stage of practically voluntary control was achieved.

SINCE this investigation, psychological training has been given to about seventy subjects who were constipated. In none of these was constipation the only difficulty. Rather, it was associated with peptic ulcer, pseudo-peptic ulcer, arthritis, anxiety states and pregnancy. In

four cases hemorrhoids were also present. In all cases the subjects were simultaneously under the care of a physician. The length of time during which these subjects had had recourse to the use of cathartics varied from six months to thirty-two years, and in many cases the dosage employed was excessive. The age range was from about twenty to sixty-three. Many nationalities were represented. They were predominantly business and professional people, but many skilled laborers, and a few unskilled, were also included. The group was about four-fifths male and one-fifth female. In all cases, with the exception of the four in which hemorrhoids were present, the constipation cleared up within three weeks. When it was associated with gastro-intestinal disturbance and pregnancy, it was readily controlled; that is to say, within a week or ten days. When it was associated with anxiety states or arthritis, two or three weeks were required.

MOST people believe that constipation is a kind of disorder of the bowels; that when they become constipated it is because there is some deficiency in their gastro-intestinal and colonic activity, and that strong chemicals are required to correct it. This mistaken belief is most profitable to the makers of certain patent medicines, "health" foods and bacterial cure-alls. To one who is constipated this idea of the condition is about the most harmful part of it, in the absence of which he would not be subject to all of the symptoms that laxative advertising teaches are the results of the constipation itself. Constipation is a "dire", "awful", "malicious", "dangerous", and "frightful" condition only in the mind of one who has been well instructed in such beliefs. At the present time this includes a large part of the population.

These ideas have become so firmly established in the public mind through propaganda that one who finds himself constipated heartily resents being informed that his condition is nothing more than a bad habit; that it is something that he has learned which does not involve any deficiency of his body. There are several reasons for the resentment. In the first place no one likes to admit that he has been influenced to his own detriment through propaganda. He feels that to do so is to admit that he is gullible. This feeling arises out of a misconception of the nature of human beings. All human beings are "gullible" in as much as all of them can learn. "Gullibility" means nothing more than unintentional learning. Any idea which is repeated time after time will be built up in the brain of the individual exposed to it. This is the fundamental mechanism on which all advertising rests. The only way to prevent its establishment is by the frequent presentation of ideas counter to it, ideas leading to critical evaluation of the first one.

Then, too, the constipated subject fails to see just how his condition comes under the category of habit. "Habit" he conceives to be something that he establishes through effort, intention, purpose, and practice. The fact is that only practice is necessary to habit formation. The manner in which the subject obtains the necessary practice may be more apparent when the real nature of constipation is considered.

Bowel activity at intervals longer than twenty-four hours may, in some cases, result from conditions not psychological. It is necessary, therefore, that a physician determine the nature of the constipation. The present consideration pertains only to the common "functional" constipation.

IT IS generally believed that it is natural to have bowel activity once a day, that is to say, that this is one of the laws governing the body; that so long as one is in a state of good health this rhythm is independent of the brain and not subject to interruption; that when modification occurs it is because there is something wrong "inside." When the bowel activity is delayed longer than twenty-four hours one conceives oneself to be constipated, and associates all these ideas with one's condition. The objective fact is, however, that constipation is nothing more than a word the layman uses when his bowel activity occurs at periods longer than twenty-four hours.

To have bowel activity is natural. It

follows the laws of the body and there is no way through which it can be completely prevented within the limits of the life of the individual. But *WHEN to have bowel movements is learned.* How frequently he will have bowel activity is one of the first things that the human being learns after he comes into this world. In fact, these things are learned at such an early age that he quite forgets they are learned and he comes to think of his whole gastrointestinal tract as incapable of learning anything. Consider the baby. In the first few months of his life there are very few things that he can learn to do with his hands or his feet. Long before any real learning involving the muscles of the skeleton can be achieved, the muscles of the digestive tract and the nerve cells controlling them learn habits which will continue for years. The first thing that a baby learns is when to be hungry. This he learns within the first two weeks of life. By feeding at definite intervals, he learns when to have hunger contractions in his stomach. A month or two later he is taught to have bowel activity at a specific time in the day and to have it every day. One of the more common methods employed to teach this is the simple procedure of inducing the bowel activity at a given time through the use of a suppository. This is repeated daily until the habit is set up. About two weeks are required to establish this habit if the child is from three to six months old. A little later the baby is taught when to urinate and when not. Again there are numerous ways in which this is done. Commonly the child is placed on the commode and left there until the urinary activity takes place, at which time he is removed. It is apparent, then, that the very first things that are learned involve the eliminative functions. What is learned is *when* to eliminate.

While the rhythm that is learned in babyhood is usually that of twenty-four hour intervals, there is no need for establishing this particular rhythm other than to make the parent feel better.

The rhythm might have been twice a day, or once every two days, without making the slightest difference to the health of the baby. There is neither natural law nor moral obligation requiring daily bowel activity.

THE average city man gets out of bed in the morning with just about enough time to catch his train and get to work. He has developed the habit of having a bowel movement each day immediately after breakfast. One night he has been out late and the next morning gets up ten minutes late. The sensations which normally precede the bowel activity arise immediately after breakfast, but, pressed for time, he disregards them and rushes for his train. He probably thinks that he will attend to the matter after he arrives at the office. He leaves out of consideration that he has learned to have the activity only at a specific time in the morning. At the office he gets busy with the things that he is accustomed to do there and the bowel activity does not occur that day. What has occurred is that he has had one day of practice at having bowel movements at intervals longer than twenty-four hours. It takes only a very few days of such practice before the habit of irregular bowel activity is established. The man then begins to worry about it a little. The worry results in increased tension in the gastrointestinal tract and the bowel activity occurs with a little more difficulty. Then he begins to resort to strain and stress in attempting to force the activity. But neither the eliminative mechanism nor the brain operate on the basis of force. Rather, the use of force preceding the bowel movement tends to become, through association, an essential part of the bowel activity, as well as one which tends toward greater tension of the muscles of the digestive tract.

ABOUT this time advertising begins to get in its greatest influence. Scores of times a day the man is reminded that constipation is a "danger sign." The advertising script and pictures intimate that it gives rise to tiredness, sluggishness, poor sleep, irritability, indigestion, and some other dire, if vague, possibilities. Perhaps the advertising displays a picture in which a patient is on an operating table with the intestines laid bare and a Viennese specialist, who is asserted to be famous, rather than infamous, implies that this is the end to which the constipated person may come if he doesn't use a given product.

Having learned to be thoroughly irregular, the man decides to have recourse to some "laxative" foods or substances, few of which, in and of themselves, will do him any particular good and many of which are distinctly detrimental to the establishment of daily unaided bowel activity.

If the supposed corrective agent is one of the "health" foods or some bacterial preparation, its consumption will probably cause no great harm. Nor, it is probable, will it give him any great aid. These, for the most part, are "psychological" remedies. The benefits, if any, arise in whole or in large part from the fact that the consumer has confidence in the product's capacity for doing what it promises to do. These "psychological" remedies have been less successful in aiding daily activity than they might have been. The reason for this may be that the advertiser has been caught in his own trap. He has built up the fear of constipation very strongly and having done that he has great difficulty in building up confidence in his remedy to the point where it will quiet the worry about the condition.

Having tried the "psychological" remedies without success, the constipated subject then turns to the cathartics. Once he has started the use of cathartics, the probability of regaining normal activity once a day is somewhat remote, for all learned rhythm is then broken up. He soon discovers that he has no bowel activity on a given day, unless he has taken some laxative substance on the day before. He tries one laxative after another hoping to make his bowel activity normal but all to no avail. He soon concludes that he has an internal weakness of some sort and that his comfort, if not his very life, depends upon the laxative.

This was about the situation found in the subjects who had been given the psychological training. They were all thoroughly convinced that theirs was an organic weakness. But in each case, with the exception of those attended by hemorrhoids, they learned to have one bowel movement a day in a few days.

342 MADISON AVENUE, NEW YORK CITY.
340 CLINTON AVENUE, BROOKLYN.

ASSOCIATED PHYSICIANS OF LONG ISLAND

Planning Big June Outing Tuesday, June 15

THE June Outing of the Associated Physicians of Long Island will be held in Glen Cove, Tuesday, June 15.

In keeping with custom, there will be athletic facilities provided all day in the Nassau Country Club, and a scientific session in the North Country Community Hospital.

Not only can one play golf all day, but there are excellent tennis courts and a fine swimming pool available to any member who chooses to use them.

The scientific session will be provided by the staff members of the hospital and will cover a varied list of medical subjects. North Country Community Hospital is a private institution of 120 beds, located on Walnut Road, which admits general medical and surgical patients. It contains all special equipment necessary and is completely staffed to cover each specialty.

RESERVE JUNE 15
Glen Cove
A. P. L. I.

Tuesday, June 15th, 1937; 3:00 P. M.
Scientific Program at the North Country Community Hospital, Glen Cove, Long Island, by the Medical Staff.

1. *Survey of Nine Years of Obstetrics in the North Country Community Hospital.* *Albert M. Bell, M. D.*
2. *Extrapulmonary Pneumococcus Infections.* *Miner C. Hill, M. D.*
3. *Deaths Following Appendectomy.* *Richard Derby, M. D.*
4. *Cases with Aplastic Blood Pictures.* *Raymond E. Lease, M. D.*

All of these papers will be followed by discussions.

A ROENTGEN STUDY OF THE *Colon*

LOUIS J. GELBER, M.D., LL.B., Newark, New Jersey

Assistant Roentgenologist to Dispensary, New York Post-Graduate Hospital and Beth Israel Hospital at Newark, N. J.

THIS study comprises all the cases admitted into the Newark Beth Israel Hospital from the years 1928 to 1936 inclusive. In these eight years, 310 patients were admitted into the medical and surgical wards for some sort of colon pathology. Of these cases, 235 either had x-rays and were treated medically or else were operated upon with no x-rays. The remaining 75 cases not only had x-rays, but were treated surgically with pathological reports rendered. Autopsies were obtained where possible.

The colons were examined with dye either by mouth after twenty-four hours or else by the barium-colon-enema. In some cases, both methods were used. The roentgen physiology of the colon was better determined by the barium meal, whereas anatomical variations and morphological characteristics were better determined by the barium-colon-enema.

Normally, twenty-four hours after barium by mouth is given, the ascending, transverse and descending portions of the colon are filled. The normal segmented haustral markings are clearly outlined and evenly placed. Any spasm, bowel movements or atonic variations would alter these segmentations as to size, shape and uniformity.

IN order to recognize morphological variations, the embryology of the colon must be understood. It is important to know that very early in embryological development, the stomach and intestines are high in the hypogastrium. Even before the loops return to the cavity of the abdomen, the large intestines increase in diameter more rapidly than the small intestines.

As the colon descends, the cecum is carried across to the right and comes to lie directly below the liver. From the fourth month of embryological life, the cecum grows from its position beneath the liver and forms the ascending colon. The proximal end of the cecum grows relatively faster than its distal portion and soon takes on the appearance of the adult cecum with the retarded distal end now forming the appendix. To know and understand the essential roentgen embryology of the intestines would permit us to recognize such anomalies as Meckel's diverticulum, stenosis and atresia of the duodenum, high cecum, absence of the ascending colon, transposition of viscera, failure of cecal rotation, etc.

At this point, mention must be made of proper technique in giving a barium-colon-enema. By not carefully noting under fluoroscopy the manner and time in which our preparation enters the various coils of the large intestines, important observation will be lost as to size, shape, movability, separability, tenderness, incomplete filling, extrinsic pressure, defects, and spasm. Furthermore, our colon-enema should not be stopped until we assure ourselves that the cecum is well filled. While studying this region, we must be sure not to forget a lurking ileocecal tuberculosis as well as a terminal ileitis in the right lower quadrant. A good fluoroscopic examination by barium-colon-enema at this region would aid us a great deal.

A Meckel's diverticulum can only be observed under fluoroscopy.

CHRONIC ulcerative colitis is a severe inflammatory disease of the large intestines. Upon healing of this condition, the mucosal lining of the bowel appears as if torn to shreds. Ulcerative colitis

Presented before the meeting of the Gastro-Enterological Society of the American Congress of Physical Therapy in New York, September 9th, 1936.

is not primarily a disease of the mucous lining of the colon but of the whole wall. Upon healing of the colon, the mucous shreds may be extruded into the lumen of the gut, giving rise to polypoid masses. Since it is generally recognized that chronic ulcerative colitis usually begins in the rectosigmoid, the greatest number of polypi will be found here. Peculiarly enough, a severe attack of amebic colitis will heal without leaving any roentgen sequelae such as distortion, dilatation, polyposis, etc. On the other hand, the healing of an ulcerative colitis leaves in its wake a great deal of roentgen pathology in the form of polyposis, distorted contour of the colon with an irregular lumen, spasm, etc.

Therefore, x-ray appearance of the colon of a patient with chronic ulcerative colitis depends upon three main factors: the duration of the disease, the virulence of the organism and the damage done to the colon. As the damage progresses in the colon, the various layers become more and more infiltrated, resulting in the loss of normal haustral markings. The lumen of the colon becomes smaller, its walls more rigid, and it comes finally to resemble a pipe, called the "lead pipe" colon.

It is essential to know that the content of the colon increases in consistency as it advances from the cecum to the rectum. More absorption occurs in the proximal colon than in the transverse or descending colon.

The fluid and salt absorptive powers in the cecum and descending colon, together with bacterial digestion, must not be impaired. Any physiological alteration must of necessity result in spasm, fermentation, etc.

Fig. 1

Malignant infiltration of proximal colon in the region of the hepatic flexure.

When the food arrives in the cecum, four and one half hours after leaving the stomach, it contains 90 per cent of water together with a small amount of unabsorbed products of digestion of proteins, fats and carbohydrates. Since most absorption occurs in the cecum and part of the ascending colon, we can readily see why a colitis involving the proximal colon is more severe than one involving the distal portion.

It was curious to observe in the study of our cases of ulcerative colitis as well as malignancies that when the lesions in the colon occurred in the proximal portions where absorption was greatest, the more severe was the toxemia. On the other hand, colonic involvements of the distal colon and sigmoid caused less severe toxic reactions. Our only conclusion in this regard was that toxic substances were readily absorbed.

The site of the disease in the colon has a marked influence on the symptoms. The diarrhea which is present in nearly all cases of "ulcerative colitis" is caused by the irritation from the inflammatory process. When the pathology is located in the proximal colon, spasms are set up in this region. In view of the fact that absorption is thus interfered with, vigorous peristaltic waves are set up, resulting in diarrhea. In these cases mucilaginous demulcent materials that have the property of taking up water from fecal materials would be indicated. On the other hand, if the proximal two-thirds of the colon are not involved, this peristaltic rush may not be present. Furthermore, if the disease is confined to the rectum and lower sigmoid, a great amount of spasm might be set up in these regions, resulting in constipation.

Knowledge of normal physiology is essential in order to know significant facts about abnormal colonic conditions with their distorted physiology and existing pathology. To summarize, we might state that for a colon to be roentgenologically negative, its physiology must not be altered.

With the history of constipation and

Fig. 2

Malignant infiltration (adenocarcinoma) involving the cecum and ascending colon.

the roentgen evidence of a dilated and apparently atonic colon, the diagnosis of "atonic constipation" is usually made. The physician upon receiving this report from the roentgenologist might proceed to treat his patient with food containing roughage, enema, laxatives and high colonic irrigations. In a short time the physician, in such a case, is surprised to learn that his patient is now suffering untold agony in the lower abdomen, together with mucus and some blood in his stools. Besides, the constipation has now changed to diarrhea and the toxic symptoms have increased to some degree. A barium-enema taken at this time would probably show some atony, but the preponderant roentgen picture would be irritability and spasm. We thus have a roentgen complex of atony alternating with spasm, so often seen in "ulcerative colitis."

FURTHERMORE, it seems to be the incoordination of the muscular motor function rather than its absence or paralysis that furnishes the basis of constipation. Under such a condition it would be folly to try to diagnose functionally a transitional incoordinated colon by fluoroscopy and brand it as an "atonic" or "spastic" form of constipation. Thus, the old terminology of "atonic" and "spastic" constipation is gradually being replaced with more exact clinical entities insofar as there are re-

Fig. 3

An obstructive type of malignant infiltration proximal to the splenic flexure.

gions of relaxation in the colon as well as spasm.

In the study of our cases, we have found that the colon may be functionally at fault where "redundancies" and "megacolon" exist, or else there may be an unbalanced autonomic innervation as seen in the spastic, irritable or atonic colon. Avitaminosis may set up a muscle and nerve incoordination very similar to cases having severe colitis.

All the colon cases under discussion have had a thorough work up, including a careful history, complete physical examination, endoscopic examination of both rectum and sigmoid where indicated and a complete examination of the stool for blood, pus and parasites. The roent-

gen studies were repeated as often as necessary.

We have observed that many functional disorders existed in the colon in the presence of disease elsewhere in the body such as hyperthyroidism, cholelithiasis, peptic ulcers, pulmonary tuberculosis, cancer, etc. Furthermore, in checking many past histories of our cases, we received stories of long use of enemas, often repeated catharsis, and indiscretions in diet.

In the study of our cases, we have noted that when constipation suddenly comes on comparatively late in life in a person who previously has been normal, the roentgen findings in a majority of cases were malignancy causing obstruction; diverticulitis causing spasm; irritability; chronic appendicitis; and tumors of the uterus in the female. In children, on the other hand, megacolon was found in the majority of instances. In these cases, sympathectomy was performed with good results in three out of four cases.

Summary

IN closing, we should recognize chronic bowel disorders wherein on the one hand we have organic inflammatory lesions with involvement of the mucous membrane, and, on the other hand, disturbances that are characterized by diarrhea, constipation and blood in the stool, altering not only the roentgen physiology of the colon but also its form and motor function. Finally, lubricating mucilaginous demulcents aided a few severe cases of non-specific "ulcerative colitis."

I wish to thank Dr. N. James Furst for his kind cooperation and assistance in the preparation of this paper.

550 MOUNT PROSPECT AVENUE.

Miscellany

A LITANY

FROM advocates of legalized abortion who themselves never perform one; from advocates of fee splitting who never split one; and from advocates of euthanasia who never yield to the importunities of the sick one's relatives,

Good Lord, deliver us.

From bores, windbags and eminent exhibitionists who monopolize programs until the hour is late and much unfinished business remains to be done after their departure; and from one-disease specialists, so narrow that they ask one what one means by psychoanalysis,

Good Lord, deliver us.

From medical uplifters who themselves will never have to serve under a socialized system of practice; and from the man who thinks and acts only in terms of sickness and who is mystified by allusions to preclinical medicine,

Good Lord, deliver us.

From the gynecologist who accuses the young diabetic victim of an itching and irritated vulva of masturbation; from birth control propagandists of the ballyhoo type; and from surgeons who depend upon antiseptic solutions to sterilize their scalpels,

Good Lord, deliver us.

From persistent occipitoposteriors; from hospitals which compete economically with their own staffs and the profession at large; and from gentlemen who read papers before history sections on how the ancient Roman physician treated boils and epilepsy,

Good Lord, deliver us.

From antivivisectionists, deadbeats, and would-be discoverers who make premature announcements; from surgeons who operate upon their own families; and from the doctor who never talks anything else but shop,

Good Lord, deliver us.

ON THE TREATMENT OF *Influenza*

EDWARD E. CORNWALL, M.D., F.A.C.P.

Brooklyn, New York

WE have no specific treatment for influenza. In this disease our best therapeutic lead is to support the *vis medicatrix naturae*.

A bright light on the treatment of influenza comes to us from a passage in the Journal of John Winthrop, early governor of the Massachusetts Bay Colony. Winthrop refers in this Journal, under a date of 1647, to the first recorded epidemic of influenza in America, as follows:

"An epidemical sickness was through the country, among Indians and English, French and Dutch. It took them like a cold, and a light fever with it. Such as bled and took cooling drinks [that is, purgatives] died; but those who took comforting things for the most part recovered, and that in a few days."

The lucky ones in this first recorded epidemic of influenza in America appear to have been those who could not get a doctor, to give them the regular treatment of the day; they had to rely on their common sense; they took "comforting things."

We find a lesson in this historical note. Routine bleeding is not a feature of the present fashion of treating influenza, but there is the use of depressing drugs. Purging is not now as drastic as formerly, but giving an initial laxative is still common practice.

Let us consider a hypothetical case. A patient with influenza complains of pains. He is given acetylsalicylic acid and a laxative—or he is given them irrespective of pains. He feels better. He also perspires. The laxative acts about four o'clock the next morning. The patient leaves his bed and goes to the water closet, which is not well heated, and comes back with pneumonia.

My treatment of influenza is very like that of the early New England colonists who could not get a doctor, and who had not heard of acetylsalicylic acid: I use "comforting things."

I put the patient in bed and keep him there and in the house until he is well recovered. And I keep him warm.

I do not move his bowels unless they need to be moved; and I usually prefer enemas for that purpose. I give him an easy diet; and the sicker he is, the easier I make the diet. If stomach or intestinal manifestations of influenza appear, I give him a special easy diet. I insure him proper rations of vitamins. I give him a rather large water ration. I give him extra alkaline salts to fortify his alkaline reserve, and to offset the tendency to acidosis which is present if fever exists; being careful not to give too much alkali. I do not give him the widely used acetylsalicylic acid or similar depressing drugs; but if his pain is severe, I may give him Dover's powder or other opiate; and in special case, I may give him alcohol. I avoid irritating with strong local applications a throat already inflamed; but I may give him a weak alkaline or neutral gargle, such as a normal saline solution. I try to safeguard his convalescence by hygienic and dietetic regulations.

A final word. When you come to treat a case of influenza, call to mind the first recorded epidemic of that disease in this country, and how well the patients did who were treated with "comforting things."

1218 PACIFIC STREET.

Remarks made at the Norwegian Hospital internes' regular biweekly meeting, Feb. 12, 1937.

Clinical Notes

RUPTURED DIVERTICULA OF THE *Rectosigmoid*

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AND
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SINCE very little mention is made in the literature of non-traumatic rupture of diverticula of the rectosigmoid it seems that the following cases should be presented. From these cases we hope to present a clinical syndrome which will suggest this diagnosis. We have selected diverticula of the rectosigmoid because most cases of diverticulosis of the large intestine occur in this region, and because our six cases of ruptured diverticula occurred here.

In order that we may better appreciate this condition let us briefly review the anatomy[1] of the rectosigmoid.

"Rectosigmoid is an anatomic name for a portion of the gastro-intestinal tract which strictly speaking represents the continuation of the pelvic colon above into the rectum below, but which surgically speaking represents the division of the large bowel which includes not only the last 5 cm. of the sigmoid, but the upper 5 cm. of the rectum proper. At the point at which the sigmoid enters the top of the rectum from the left side the direction usually changes, thus making an angulation as the peritoneum covered colon merges into the rectroperitoneal portion of the pelvis. In addition to narrowing of the bowel at the rectosigmoid, there is a change in the mucosa from the rugae of the sigmoid to the smooth mucosa of the rectum. Examination of the outside of the rectosigmoid discloses: (1) absence of mesentery, (2) longitudinal muscle bands of the sigmoid spread out making a complete longitudinal layer for the rectum, (3) the superior hemorrhoidal artery divided into the right and left branches at the origin of the rectum; and (4) absence of epiploic tags which are present on the sigmoid."

A diverticulum is a non-neoplastic bulging of the mucosa and submucosa through a weak spot in the muscularis of the intestine. A diverticulum may be false or true. A false diverticulum has an absence of one or more coats of the wall, while a true diverticulum contains all layers of the wall.

Diverticula may vary in size from that of a pea to a hen's egg or larger. They may number from 1 to 100 or more and may be confined to a single intestinal segment or scattered over several. Diverticula may remain healthy or may become infected (diverticulitis). This inflammation may involve surrounding tissues (peridiverticulitis).

Since we propose to discuss only rectosigmoidal diverticula, it is important to note that 25 per cent of such lesions in this region undergo inflammatory changes.

Etiology

DIVERTICULITIS occurs more than twice as often in men as in women. It is usually found after the fourth decade and accompanies wasting diseases and chronic constipation.

In addition, vessel openings and sites

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of epiploical attachments are contributory factors. Infarcts, worms, foreign bodies, obesity, ulcerative colitis, and dilated intestinal glands are also contributory factors. New growths or any chronic obstructive lesion must also be considered as etiological agents. Diverticula on the mesenteric border, some authors believe, are the result of blood vessel openings. Intestinal outpocketings occur more frequently at the sites of the appendices epiploicae, which are undoubtedly factors in their production, since such points are vulnerable because the appendices are continuous with the subperitoneal fat.

With this introduction let us proceed to the analysis of our six cases of ruptured diverticula with the hope that we may develop a symptom complex common to all.

Case I

A WHITE male telephone lineman, 48 years of age. He complained of a sudden severe onset of pain in the left lower quadrant coming on nine hours before admission. The pain was continuous since onset and worse at times. He had no nausea nor vomiting since the onset. For the past three years he has had occasional knife-like pains beginning in the right side of abdomen and shooting into the right thigh.

Local examination revealed sharply localized tenderness in the left lower quadrant with spasm and rigidity. Rectal examination was negative. The white count on admission was 17,000 per cu.mm. The temperature was 100 degrees F.

Operation one hour after admission consisted of an exploratory laparotomy through a left rectus incision. A perforated diverticulum with localized peritonitis was found. No attempt was made to repair the perforation. The treatment consisted only of inserting drains to relieve the local peritonitis. The patient recovered.

Case II

A 42-YEAR-OLD, white male brakeman entered the hospital complaining of generalized abdominal pain of three days duration. It came on gradually following proctoscopy. The pain varied from a dull cramp-like to a sharp knife-like character, and did not become localized. On the day before admission he vomited every time he took any sort of food. The white count was 10,300 per cu.mm. The temperature was 100.6° F. Examination of the abdomen showed moderate distention and generalized tenderness without rigidity or spasm. An x-ray plate showed pneumoperitoneum, indicating a ruptured hollow viscus.

An exploratory laparotomy was done through a left rectus incision. About three ounces of pus was found around the rectosigmoid. Perforation was found on the posterior surface of the rectosigmoid. No attempt at closure was made. Two drains were inserted. The patient recovered.

Case III

A 53-YEAR-OLD, white male carpenter entered the hospital complaining of a sudden severe onset of generalized abdominal pain coming on seven hours before admission. The pain had been continuous and on one occasion forced the patient to double up. He vomited once and then had constant nausea with no vomiting. Following onset patient had five watery stools tinged with blood. The white count went from 4,000 to 10,600 per cu.mm. in 24 hours. The temperature was 99.2° F. Abdominal examination showed generalized tenderness, more marked in the left lower quadrant. There was also generalized spasm. An x-ray plate suggested partial intestinal obstruction. Twenty-four hours after admission combined rectal and abdominal examination showed localized tenderness and midline tumefaction.

An exploratory laparotomy was done through a right rectus incision. An abscess was found in the rectosigmoidal region and was treated by drainage only. Patient died in 24 hours.

Case IV

A 66-YEAR-OLD, white male farmer entered the Harrington Hospital, Southbridge, complaining of a sudden sharp onset of pain in both lower abdominal quadrants, coming on about five hours

before admission. The pain was continuous and became worse. There was no nausea nor vomiting. Two white counts were 8000 and 7200 per cu.mm. respectively. Temperature 100 F. Abdominal examination revealed marked tenderness in both lower quadrants with spasm of entire abdominal wall, more marked below umbilicus. An x-ray plate was negative for pneumoperitoneum.

An exploratory laparotomy was done through a low midline incision. A general peritonitis was found in the lower abdomen. A perforated diverticulum at the rectosigmoid was found exuding fecal material. Perforation was inverted and sutured. The wound was closed with five drains. Patient died eight days following operation.

Case V

A 52-YEAR-OLD, white housewife entered the hospital complaining of pain in the lower abdomen of three days duration. This pain came on 2 or 3 hours after doing some hard work. In the morning following the onset of pain the patient noted that the pain radiated to the right side. The pain continued dull and aching. On the morning of admission she was slightly nauseated. The white count was 14,200 per cu.mm. The temperature was 100.2 F. Abdominal examination revealed tenderness in the right lower quadrant of abdomen. There was some resistance of the muscles of both lower quadrants. On vaginal examination an irregular, tender mass was palpated posterior to the uterus.

An exploratory laparotomy was done through a suprapubic midline incision. Appendices epiploicae of lower sigmoid were agglutinated and edematous. All adhesions freed and the mass recognized as a peridiverticulitis. Two drains were inserted between the rectum and uterus. Patient recovered.

Case VI

A 57-YEAR-OLD, white male engineer entered the hospital complaining of sudden generalized abdominal pain of about 8 hours duration. It came on while riding when he received a jar. His truss slipped down, but the pain continued after readjusting the truss. He had no nausea or vomiting. The white count was 17,000 per cu.mm. The temperature was 100 degrees F. Abdominal examination revealed generalized tenderness and spasm. A left inguinal hernia was easily reduced.

An exploratory laparotomy was done through an upper right rectus incision. This was extended downward and a perforation was found in the lateral wall of the rectosigmoid, large enough to admit a finger. The perforation was closed. A drainage tube was left in the pelvis. The patient died seven hours after operation.

Discussion

IN this series of ruptured diverticula the onset was characterized by sudden low abdominal pain which was constant, and at times colicky in character. The pain became progressively more severe and usually localized in the left lower quadrant. On examination there was general tenderness, spasm, and rigidity after the first few hours, most marked in the left lower quadrant. Shock was not an early symptom of rupture in this region as compared with perforation of a peptic ulcer. In the cases seen shortly after perforation the white count was not elevated. It was only after the peritoneum had become involved that the white count became elevated. The temperature and pulse were only slightly elevated in all of our cases until peritonitis supervened.

Special Examinations

RECTAL examination was negative in the cases seen early. If peritonitis has developed a rectal examination will show localized tenderness with tumefaction as in case III. Vaginal examination in our single female case showed a tender, irregular mass posterior to the uterus.

We feel that it is important to urge a flat plate of the abdomen in all suspected cases of diverticulitis with perforation in order to demonstrate pneumoperitoneum.

The ages in our series varied from 42 to 66 years. There were five males and one female.

Summary

TREATMENT is definitely surgical. Prompt exploration and drainage are paramount.

—Concluded on page 328

DIFFERENTIAL DIAGNOSIS OF *Herniae*

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ONE must almost apologize for commenting on such a well known subject as hernia, yet it is felt that the differential diagnosis of hernia should be made preoperatively with some degree of surety, and therefore the subject merits reconsideration from time to time. One of the first and at times very difficult decisions to make is whether the hernia is an inguinal or femoral type. In cases in which the neck of the sac can be palpated it is easy to know whether this lies above or below the inguinal ligament. However, in those femoral herniae in which the protusion has "curled up" over the ligament, the inguinal hernia will be simulated. If the external ring can be palpated and entered with the fingers, it is possible to know whether the mass lies within the inguinal canal or without. With an accurate description on the part of the patient of the first sign of the protusion, the question is again in process of solution.

The usual course of an inguinal hernia is described as beginning following some strain or unusual exertion and is characterized by the feeling of something giving way and the presence of a small mass at the internal ring. As time goes on the patient notices that this mass enlarges and appears to extend farther down the inguinal canal, and eventually, if the external ring is not too small, the hernia becomes complete and is located either in the scrotum of the male or in the labium majus of the female. This mass is at first reducible on lying down, but later, if omentum or a part of the intestinal canal is contained in the sac, the reduction is accompanied by more or less difficulty. At times, when undue injury has occurred to traumatize the contents of the sac, or the fecal current becomes slowed, swelling takes place which causes reaction at the neck of the sac and prevents reduction of the contents, with the early result of incarceration of the contents and the later result of strangulation or gangrene of the omentum, with or without the collection of fluid, and, in case of intestinal contents, of obstruction. In this type of case the diagnosis is usually made readily.

The formation of femoral hernia is somewhat similar in onset with regard to the history of strain, feeling of tearing and presence of a mass located below Poupart's ligament and on the inner surface of the thigh. This sac is at first small, and disappears on lying down. It gradually increases in size and may or may not hold omentum or a portion of the intestinal tract. Similar to the inguinal hernia injury, incarceration, strangulation, inflammation or gangrene may appear. The larger femoral hernias have a tendency to "curl" upward over the inguinal ligament. The differential diagnosis between these two may be made on the history of onset, location of the neck of the sac if possible, and palpation of the inguinal canal through the external ring.

Simple hydrocele is sometimes confused with scrotal hernia, but can readily be diagnosed by transillumination in a darkened room. The hydrocele of the cord is much more difficult to differentiate in that transillumination can not be done very successfully, and the mass continues to be hard, irreducible, and at time fluctuant. The most valuable differential point is the history of onset. The history of a previously reducible hernia would lead one to feel that incarcerated hernia rather than hydrocele is present. It must also be remembered in speaking of hydrocele that a condition closely resembling

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it can occur in women, and one of our recent cases exhibited a multilocular structure which was about the size of a large cucumber and extended clear down into the labium majus. There was no possibility of transillumination. It was an irreducible mass which was dense, and there was an inguinal hernia. At operation, a massive "hydrocele" was found and a hernia about the size of a thumb was discovered at the upper portion of the inguinal canal.

THE presence of varicocele is characterized by an enlargement of the cord extending into the scrotum which on palpation is found to have the feeling of a bag of worms. The fact that the testicle is carried lower on that side and that there is no history of a reducible mass will aid in making this diagnosis.

Teratomata are often found in the region of the inguinal canal. These are difficult to diagnose successfully in that fluid is usually present, and they are diagnosed as hydrocele either of the tunica vaginalis or of the cord. Differentiation from hernia is aided by the history of onset. However, the final diagnosis is frequently not made until the operation is performed and the gross pathology becomes apparent in many cases, but in others it remains for the microscopic pathological report to establish the final diagnosis. Other tumors which may occur in this region are the sarcoma, leiomyosarcoma and rarely carcinoma. These tumor masses are usually hard and are rarely to be confused with hernia, but their mode of onset may contribute to an erroneous diagnosis. The softer type of sarcoma may be confused with hydrocele but will not transilluminate in the manner of the latter.

ENLARGED lymph glands frequently appear in this region. These are usually superficial to the inguinal canal and can be palpated readily. If the external ring admits the finger, it is possible to feel up the canal and by bimanual examination to locate the lymph glands as being superior to it. The presence of large lymph glands in the region of Scarpa's triangle will often present the appearance of femoral hernia, but here again the history of onset of the hernia will be lacking. In these cases of enlarged lymph glands, the presence of a focus of infection on the toe, between the toes, on the foot or on the leg, is of great diagnostic importance. In all cases of this type, it is important that the bare foot and leg be examined. There is usually also pain at the site, and at times fever, and in the more severe cases red streaks up the leg.

Abscesses in this region, if superficial, are readily recognized. The deep abscesses and broken-down lymph glands are more difficult and require greater care in diagnosis. The low grade type of infection, starting high in the region, progressing downward slowly and gradually enlarging will present quite a confusing picture. The typical history of onset of hernia will be lacking, the mass will be more fluctuant and will extend to sites not anatomically compatible with hernia. The bubo is usually located more superficially and the history of a venereal infection will usually be present. This type of gland may appear with a Neisserian infection, the bacilli of Ducrey's infection, at times with luetic infection and other venereal conditions.

IN conclusion, may I suggest that the patient presenting himself as a case of hernia have a very careful history taken as to onset and progression. The history of intestinal stasis or colic is significant. A most careful examination should be made to fix in one's mind the exact size, shape and quality of the mass present, and to determine whether it is reducible or not. The early case of incarceration may have considerable pain; the late case of strangulation may show the formation of secondary hydrocele. The still later case of strangulation will have intestinal colic, sometimes obstipation, cramps, and at times vomiting. If the hernia is reducible and is not present when the patient is lying down, it is of utmost importance to have him stand up and to notice the hernia sac gradually filling. It is also important to transilluminate all cases in which it is possible. By these methods it is hoped that a more careful preoperative diagnosis can be made.

4800 FRIENDSHIP AVENUE.

Cancer

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THE ENDOCRINE RELATIONS OF CANCER
V.
THE OVARIAN HORMONES

THE recent contributions to the question of cancer of the ovary have been reviewed in this department recently (22). The figures for 1935, published by the New York State Department of Health, show that 2.41 per cent of the deaths from cancer were from ovarian cancer (25).

The influence of the ovary on the development of cancer was probably first suggested by the clinical observation of Beatson (3), followed by the experiments of Leo Loeb (20a) and of Lathrop and Loeb (18).

The ovary apparently produces two hormones: One from the metabolism of the cells in the Graafian follicle and the other from the corpus luteum. Estrin or oestrine, also spelled oestrone, is the name which appears to be most frequently used for the follicular hormone. Progestin is the name most frequently used for the luteal hormone. Estrin is also known as theelol, theelin, amniotin and progynon. The reader is referred to an article by Leo Loeb (20,c) in the Glandular Physiology and Therapy Series for a more detailed discussion.

According to Dodds (8) five estrus-producing substances have been isolated from the ovary, the urine of pregnancy or the placenta. Estrin was the first to be isolated in crystalline form. Later, by a process of partial hydrogenation, estrin was converted into estradiol, which is about five times as active as estrin itself and is at present looked upon as the true ovarian hormone. Oestriol, equiline, and equilenin are the remaining members of the group.

According to Lacassagne (17,c) the chemical formula for estrin is $C_{18}H_{22}O_2$. Equiline is an estrogenic hormone, obtained from the urine of mares, and has a chemical formula $C_{18}H_{20}O_2$. Equilenine is another estrogenic hormone, with the chemical formula $C_{18}H_{18}O_2$.

In 1902 Loeb (20,a) found that an adenoma of the mammary gland of a female rat, when transplanted into the anterior abdominal wall of the same animal near the groin, began to grow at an extraordinary rate when the rat became pregnant. After the birth of the litter the growth of the transplant stopped and retrogressive changes took place, similar to those seen in a normal breast under like conditions. However, the transplanted adenoma did not produce milk upon the termination of the pregnancy.

In 1916 Lathrop and Loeb (18) formed the opinion that it seemed "an established fact that a substance given off by the corpus luteum induces the periodic growth of the mammary gland during pregnancy and in some species also dur-

ing periods of the sexual cycle unaccompanied by pregnancy."

IN 1919 Loeb (20,b) published a further study of the influence of internal secretions upon the origin of tumors in mice. The question was approached experimentally by the study of the influence of castration, the prevention of breeding, and by the transplantation of ovaries into male mice. As a result of the experiments he concluded that a hormone produced by the ovary regulates the tissue changes that lead to the development of cancer of the breast in mice. The influence of this hormone depends upon its amount. If the amount is large cancer appears as often in castrated animals as it would in noncastrated animals. If the amount is very small cancer appears rarely or not at all. If the amount of hormone administered lies between the two extremes the number of cancers is notably reduced and the tumors that do develop appear later in life.

The effect of hormones is exerted on those organs to which, under normal conditions, they have a specific relation. We may assume that connections similar to those between the ovary and cancer of the breast also exist between the ovary and cancer of the uterus, and between the testicle and cancer of the prostate. Perhaps also there is a similar relation between the thyroid hormone and cancer of bone.

"While the experimental evidence thus points to the conclusion that the internal secretion of the ovary has no noticeable influence on mammary cancer after it has once been established, there remains the possibility that ovarian hormones may influence those tissue changes which lead to the production of mammary cancer."

IN the 1919 contribution we also find this statement: "We see then that, in the main, three factors are active in the development of cancer: (a) heredity; (b) irritation (physical stimulation); (c) internal secretion (chemical stimulation)". "The evidence points to the conclusion that if the physical stimulation is sufficiently strong cancer may develop without the cooperation of these hereditary factors."

Max Cutler (7) in 1932 expressed the opinion that the cyclic changes associated with menstruation that occur in the normal breast are dependent on the action of the corpus luteum, which in turn is governed by the anterior lobe of the pituitary body.

Hoffman (16) in 1933 reported a case in which metastatic nodules from a breast carcinoma disappeared after the irradiation of the ovaries.

Lewis and Geschickter (19,a) say that the study of breast tissue of women at various known periods of the menstrual cycle and of pregnancy, and that of animals which have been injected with theelin and progestin combined, indicates that the changes are fundamentally the same. The age period at which chronic cystic mastitis is most common corresponds with the age period at which the hormones are most active.

In a previous review of the relation of the malignant tumors, carcinoma, epithelioma, and sarcoma of various kinds, we referred to the observations of Ewing (11) concerning benzanthracene and other high distillation products of coal tar, their carcinogenic properties and their chemical relation with estrin and bile acids. These coal tar derivatives possess marked estrogenic properties; they will bring on menstruation in ovariectomized animals and will hasten sexual maturity in immature animals.

Furth and Furth (13), in the course of a paper describing the results of general irradiation of mice with x-rays, write as follows: "Since the studies of Leo Loeb it is well known that ovarian activity is the primary factor in the causation of breast cancer, so that X-ray castration would be expected to decrease the incidence of breast cancer."

In their X-rayed mice with ovarian tumors of the granulosa cell type the incidence of breast cancer was very high (approximately 25.0 percent) and many of these mice also had endometrial hyperplasia, "probably because these growths secrete the estrogenic hormone."

Furth and Butterworth (12) in a paper based on a study of sixty-eight mice with ovarian tumors conclude that in many animals with granulosa cell tumors excessive endocrine function is indicated by extensive cystic glandular hyperplasia of the endometrium and in a few animals by hyperplasia of the anterior lobe of

the pituitary body. They found that the incidence of breast tumors in mice with granulosa cell tumors of the ovary was greater than in irradiated females of the same stock. They also found that breast tumors were fewer among irradiated mice with no ovarian tumor or with tubular adenoma of the ovary. Sterilization, however, did not cause cessation of estrin production and did not altogether prevent the formation of breast tumors.

The Influence of Pregnancy and Lactation on Tumors:

MISCHENKO, (24) after sixty experiments, using the Charkow strain of rat sarcoma, the Jensen rat sarcoma, and the Flexner-Jobling carcinoma, concluded that there is an inhibitory influence on tumor growth during pregnancy. Indeed in some instances the tumor may disappear. On the other hand, during lactation tumor growth is accelerated and a previously resorbed tumor may resume active growth.

Emge (9) says that clinical evidence suggests that pregnancy exercises a protective mechanism against tumor growth, but that neoplastic tissue sensitive to hormonal stimuli may exhibit increased activity during pregnancy. However, it is not proved that pregnancy favors the inception of maligancy or of the malignant degeneration of benign tumors. He finds that experimental evidence substantiates the clinical findings and permits the conclusion that pregnancy, as a rule, does not influence the growth rate or the size of neoplasms beyond certain reactions of which retardation is the most frequent. At the termination of gestation neoplasms assume their primary growth rate.

On the other hand, Suntzeff, Burns, Moskop and Loeb (30,a) reach the conclusion that there is no correlation between the incidence of mammary cancer and the characteristics of the sexual cycle in various strains of mice.

The Influence of the Injection of Gland Products Into Animals:

SUGIURA and Benedict (29) studied the influence of injections of theelin and theelol, and of other endocrine products, into animals harboring the Flexner rat carcinoma, the Jensen rat sarcoma, the Sugiura rat sarcoma, the Bashford mouse carcinoma No. 63, the Twort mouse carcinoma, the Gye mouse sarcoma No. 37, a transplantable mouse melanoma, and the Rouss chicken sarcoma No. 1. They found no demonstrable accelerating influence on tumor growth.

Overholser and Allen (26) employed nine female *Macacus rhesus* monkeys in their experiments. The cervices were traumatized through a vaginal speculum at seven to ten day intervals and in addition, in some of the animals, a small metal clip was clamped on the cervix. Subcutaneous injections of fifty to 360 rat units of theelin or amniotin were given twice daily and in four of the animals corporin (corpus luteum hormone) was also injected. In four animals subjected to oophorectomy, atypical overgrowths, characterized by marked squamous cell downgrowth and by overgrowth and epidermization of the cervical glands at the junction of the squamous and columnar epithelium, were found. In three animals the results were negative. In a normal control animal subjected to trauma alone there was only slight epidermization of the cervical glands. In another control animal in which oophorectomy had been done, the results were completely negative.

Zuckerman (34) found that metaplastic changes occur in the cylindrical epithelium of the cervix uteri of rhesus monkeys receiving estrin injections for about three months. The columnar epithelium is replaced in places by squamous cells which invade the myometrium. The process is an orderly one and the patches of squamous cells are insulated by a remarkably thick basement membrane. It does not possess the general character of malignancy and it is reversible.

LACASSAGNE (17,a) selected twelve male mice from a strain in which 72.0 percent of the females developed adenocarcinoma of the breast. He injected these male mice with 300 international units of folliculin once a week from birth. Eleven of them developed adenocarcinoma of the mammary glands.

Male mice from a strain in which cancer of the breast is rare also developed mammary cancer after folliculin injections. However, these ani-

mals developed their tumors at an older age than the mice of the cancer susceptible strain. Consequently, he is of the opinion that the action of the hormone is more important than the hereditary factor.

It appears undeniable that adenocarcinoma in the mouse is the result of a prolonged proliferative stimulation produced by the action of folliculin on the cells of the mammary gland.

Lacassagne goes on to say that there is a parallel between the cancerigenic action of folliculin and that of certain hydrocarbons extracted from coal tar; there is a similar chemical structure for folliculin, these hydrocarbons, and cholesterin.

The cancerigenic hydrocarbons act locally on certain cells of the skin, converting them into cancer cells. Folliculin is carried by the blood to the cells of the mammary gland; colostrum contains a considerable quantity of it. So certain women retain folliculin in their breasts or in certain parts of one or the other breast and consequently the prolonged irritation of the epithelium results in hypersecretion, the formation of cysts, intracystic epithelial overgrowths (vegetations) and finally proliferation with a tendency to infiltration and cancerization.

Beards (2) thinks that the evidence tends to show that increased concentration of estrin favors the production of malignant changes.

Bishoff and Maxwell (4) found no influence on the growth of transplants of sarcoma 180 following the injection of 2000 units of estrin. They also found that injection of prolactin had no appreciable effect upon the growth of transplants of the Simpson spontaneous mammary carcinoma.

McEuen (21) found that a solution of estrin (oestrone) in oil given subcutaneously or by intrauterine instillations in castrated female rats frequently produced a squamous metaplasia of the uterine epithelium, with downgrowth into the stroma. The transformation did not progress beyond that point even in experiments continued for several months. On the other hand, this metaplasia did not follow direct application of 1; 2: 5: 6 dibenzanthracene nor of gas house tar although they are known to be carcinogenic agents. Neither subcutaneous injection nor direct application of estrin produced metaplasia of the sex gland epithelium in male rats.

LACASSAGNE (17,b) writing under the title Hormone Pathogenesis of Adenocarcinoma of the Breast says: The prolonged action of estrin (oestrone) on the organism of the mouse manifests itself by the initiation and the maintenance of multiplicatory activity in the epithelium of the vagina, the uterus, the prostate and the breast.

The results of prolonged injection of estrin show that there are two factors in the development of adenocarcinoma of the breast in mice: the hereditary and the hormonal. The hereditary factor is shown by the fact that after the same treatment with estrin, a predisposed strain produces cancer earlier in both males and females; a strain little predisposed to cancer produces cancer much later; and a refractory strain seems to produce cancer very late or not at all.

The hormonal influence produces cancer in all animals treated, both male and female. In highly susceptible animals the physiological production of estrin is sufficient to produce proliferation in the breast so that cancer appears in about one year. In a less susceptible strain fewer have reached the stage of proliferation which will result in cancer by the termination of their normal span of life. In slightly susceptible mice there is not sufficient time for the hormonal influence to have produced all the stages of proliferation which end in cancer in the course of their normal span of life. All the newer acquisitions in oncology, experimental as well as clinical, confirm the necessity (or at least the great frequency) of a slow and persistent action of estrin on the normal cell in order that it may be transformed into a cancer cell. The action of estrin at first results in a simple proliferation which ends finally in a malignant proliferation. The former stage of simple proliferation is susceptible of regression if the irritative agent is removed.

In a later communication Lacassagne (17,c) elaborates his former paper with the following experimental results: A litter of mice born May 31, 1935, con-

sisted of three males and one female. These animals were injected with estrin once a week beginning June 11th. One male died of prostatitis without cancer after 107 days. The female died of pyometra without cancer after 141 days. The two other males developed adenocarcinoma of the breast after 209 and 219 days respectively.

Another litter consisting of four males and one female, born September 17, 1935, was injected with equiline beginning September 24th. The female developed adenocarcinoma of the breast after 146 days. All the males developed adenocarcinoma of the breast after 153, 162, 216, and 321 days, respectively.

The third litter, born June 4, 1935, consisting of four males and one female, was injected with equilenine beginning June 25th. One male died accidentally after 21 days. Two males developed adenocarcinoma of the breast after 300 and 308 days respectively. The fourth male developed a "tumor" after 440 days. The female developed adenocarcinoma of the breast after 304 days.

THESE three hormones may produce characteristic modifications in the mammary gland, the uterus, the prostate and the hypophysis, if they act in an intense and prolonged manner. The changes appear promptly and progress rapidly when estrin is used; they are slow to appear and develop slowly when equiline is employed; and they appear late and are inconstant when equilenine is injected.

In strains of mice little subject to or refractory to spontaneous mammary cancer the changes appear much later than in strains highly susceptible to spontaneous mammary cancer. In two strains considered refractory to cancer, after tratment with estrine and hypophyseal extract in combination, epithelioma of the uterus, myosarcoma of the bladder, and lymphosarcomata have been observed. Seven lymphosarcomata have appeared in the same strains of mice after treatment with female sex hormones alone. In these animals the hypophyses appeared normal on histological study.

Suntzeff, Burns, Moskop and Loeb (30,b) report the result of the injection of estrin in various strains of mice. In one series of experiments the doses varied from a fraction of one rat unit to twenty rat units in water daily; in another series fifty rat units in water were administered twice a week; in a third series one hundred rat units in oil were injected twice a week. Two hundred and ninety non-breeding females were used as controls. No tumors developed in 277 of these controls. Spontaneous tumors developed in thirteen of the animals, or 4.18 per cent. On the other hand, of 320 breeding females, 109 developed spontaneous tumors, 34.1 per cent.

In the estrin injection experiments, of 102 mice, both male and female of various strains, twenty-eight tumors developed, 27.4 per cent. In strains showing a high cancer incidence tumors developed in from 32.4 per cent to 83.3 per cent. In animals of low cancer incidence the percentage in which tumors appeared varied from none to 20.

As a result of this experimental work the authors conclude that it is possible to increase the incidence of mammary cancer in mice by long continued injections of estrin. The effect varies directly with the size of the dose of estrin and with the hereditary tendency of a given strain. In a strain of mice in which there is a high spontaneous cancer incidence, large doses of estrin administered over a long period lower the age at which cancer appears and increase the number of tumors developing on account of the great responsiveness of the mammary gland to prolonged estrin stimulation. The tumor rate is raised to a lesser extent and the tumor age is lowered to a slighter degree in animals belonging to a strain of low tumor incidence.

ZONDEK (33,b) found that under physiologic conditions follicular hormone produced hyperplasia of the muscular wall and proliferation of the mucous membrane of the rabbit's uterus. Prolonged application of large doses of follicular hormone in rats (from 2000 to 25000 mouse units a week up to twelve weeks) produced (a) hyperemia of the myometrium and of the endometrium with occasional scanty extravasal hemorrhages; (b) glandular-cystic hyperplasia of the endometrium; (c) infarct-like necrosis of the myometrium; and (d) aseptic suppuration in the uterine cavity.

Suntzeff and his co-workers found that upon the administration of estrin, cancer of the mammary gland is produced as readily in male mice of high tumor strains as in nonbreeding females of the same strain. They further concluded that the development of spontaneous breast cancer in mice is due to the action of ovarian hormones on specially responsive breast tissue. The responsiveness of the breast tissue is an hereditary factor.

Bagg (1) concludes from his experiments on mice that the functional activity of the mammary gland is related to the production of spontaneous mammary gland tumors in certain strains of mice, and that internal factors of a hormone nature (probably ovarian in this case) and possibly the chemical irritation of retained mammary gland secretions bear a causative relation to the onset of breast cancer.

Gardner, Smith, Strong and Allen (14) injected theelin, equilin benzoate, ketoestrin, and hydroxyestrin benzoate into 126 mice of three inbred strains for periods of 125 or more days. Twenty-eight of the animals developed one or more mammary carcinomata (22.2 per cent). Seven others developed spindle cell sarcomata as local reactions in retained oil cysts at the sites of the injections; a total of thirty-five malignant tumors, or 27.7 per cent. Some of the tumors appeared in male mice and some in females of a relatively tumor-resistant strain.

Cramer and Horning (6,a) painted the skin of mice twice weekly with a 0.01 per cent solution of estrine in chloroform. The mice used in the experiments came from a mixed strain with a low incidence of spontaneous mammary tumors and from a specially inbred strain with an incidence of about 70.0 per cent of spontaneous mammary tumors. Both male and female mice were used and both normal and castrated individuals were employed in the experiments. They conclude: (1) that estrin is absorbed by the unbroken skin, producing no local carcinogenic effect. (2) Unlike the other carcinogenic substances so far studied experimentally the carcinogenic effect of estrin is restricted to a tissue remote from the site of application, but possessing a specific physiological sensitiveness to it.

THE action of estrin resembles that of the other carcinogenic agents in producing first a hyperplasia of the tissue in which the cancer subsequently develops, and in the long period of time necessary to induce cancer (sixteen to twenty-one weeks of estrin painting). (3) The striking difference between the carcinogenic response of male mice belonging to two different strains to the influence of estrin demonstrates clearly the importance of the factor of "susceptibility," which in this case is genetic in origin, in the etiology of cancer. The fact that cancer develops best in a site in which it never appears spontaneously demonstrates equally clearly the importance of the extrinsic carcinogenic factor, in this case, estrin. (4) The sensitiveness of the male mamma in its carcinogenic response to estrin, contrasted with the great insentitiveness to estrin of the female mamma in animals of a pure strain in which the female mamma develops cancer spontaneously in a very high percentage, suggests that either the female organism is able to destroy effectively the excess of estrin administered experimentally, or that the carcinogenic response of the mammary epithelium depends on an indirect and not on a direct interaction between estrin and the cells.

Zondek (33,c) states that the prolonged administration of the follicular hormone (estrin) interferes with the function of the anterior lobe of the pituitary body and that the gonadotropic (Prolan A) function is the most sensitive. This dysfunction occurs in both rats and birds. It is believed to occur because estrin prevents prolan A from entering the blood stream. Zondek's conclusions were drawn after the experimental injection of estrin continuously for several months and he is critical of reported results of experiments lasting at most sixty-six days. As a result of his studies he is of the opinion that small doses of estrin stimulate, while larger doses depress the anterior lobe of the pituitary body. In a later paper (33,d) he concludes that the growth hormone of the anterior pituitary body has no important effect upon the growth of malignant tumors.

Heiman and Krehbiel (15) found that in the animals into which they had transplanted a soft fibroadenoma, theelin in

combination with antuitrin S increased the incidence of tumor growth in both male and female castrates, and that theelin in combination with antuitrin S or antuitrin G produced a definite increase in breast hyperplasia which led to the formation of benign fibroadenomata.

Burrows (5) in a series of experiments in which he painted the skin of the interscapular region of 130 male mice, twenty of which had been castrated, twice a week with a 0.01 per cent solution of chemically pure ketohydroxyestrin in benzene, found that after 175 days one of the castrated animals developed a tumor in the right axilla. This tumor was removed and an autograft was made in the right groin. Fifty-eight days later, the graft had grown and had metastasized to the visceral and the parietal peritoneum and to both lungs.

Two hundred and ninety-one days after the beginning of this experiment another castrated animal developed a mammary carcinoma. This animal had also been painted with progestin ten times at five-day intervals for the first fifty-five days of the experiment.

CRAMER and Horning (6,a) found that the pituitary bodies of twelve mice, treated for from nineteen to forty-four weeks with estrin, were abnormal. In eight animals the pituitaries were enlarged; in three they were definitely adenomatous, from five to ten times the size of the normal organ. These changes were found in animals of both strains both with and without mammary cancer.

Effect of the Removal of the Ovaries On the Development of Tumors:

Lathrop and Loeb (18) in 1916, after a study of the effect of castration of female mice, concluded that the operation, if performed before the animals had reached the age of six months, led to a very marked decrease in cancer incidence, although entire prevention of the development of cancer did not result. There was no effect on the cancer incidence if the ovaries were removed after the animals had passed the six months period. Prevention of breeding decreased the incidence of cancer, and increased the age at which the tumors appeared, but to a much less degree than castration. They were of the opinion that their work was the first experimental demonstration of an internal secretion as an etiologic factor in the development of spontaneous cancer.

Paterson (28) reports the case of a woman, aged 46 years, who had cancer of the breast with metastasis to the axillary lymphnodes and to the skin. In July, 1935, she consented to have a double oophorectomy. Ten months later there was no sign of active disease. The axillary metastases and the cutaneous nodules had disappeared and the breast was a "shriveled, fibrous mass." This patient, however, consented to have a splenectomy at the same time that the double oophorectomy was done.

Heiman and Krehbiel (15) found that a soft fibroadenoma, when transplanted into white rats which had not attained sexual maturity, lost its glandular components and became a hard cellular fibroma. As the very young females pass puberty the tumor changes; there is a preponderance of young fibroblasts and later the glandular elements increase. In adult female rats of litter-bearing age the tumors show pronounced glandular hypertrophy and a tendency to cyst formation. In old females, past the litter-bearing age, cystomata develop from the transplanted tumors.

The authors conclude from their experiments that these changes are probably the result of endogenous endocrine factors. In male castrates the number of takes increases and the rate of growth is accelerated. In female castrates, on the other hand, the number of takes is decreased and the rate of growth is delayed. These observations may indicate a causal relation to endocrine imbalance.

After growing in sexually immature rats a transplanted fibroadenoma became a cellular fibroma or sarcoma. After being transplanted through several generations this cellular fibroma or sarcoma retains its morphology, even when transplanted into adult or senile animals.

Influence of Ovarian Hormones On the Pituitary Body:

ZONDÉK (33,a) found that the administration of the follicular horomone (estrin) over a long period inhibits the ante-

rior lobe of the pituitary body so that the growth hormone and the gonadotropic hormone become inactive. Dwarfed animals with hypoplastic genitalia result. The dysfunctioning pituitaries of the male rats are so enlarged that they weigh as much as four times the normal. In one female rat a pituitary tumor was developed which was twenty times the size of the normal gland. The pituitary bodies of female rabbits failed to increase in size after prolonged periods of estrin administration.

Burrows (5) in an experimental study of 679 mice, 619 males and 60 females, treated 567 of the males with estrogen over a prolonged period. He found that only one of the animals developed a tumor of the anterior lobe of the pituitary body. Ten of the females were untreated breeding animals without mammary tumor and fifty were untreated breeding animals with mammary tumors. None of these animals had pituitary tumors. The male mouse which presented the pituitary tumor also had a "thyroid adenoma, adrenal changes and extensive mammary development with lactational changes coincident with spermatogenesis."

Cramer and Horning (6,b) found that the prolonged application of estrin in mice results functionally in a condition closely resembling that following hypophysectomy. Morphologically, it produced an hyperplasia of the anterior lobe of the pituitary body the cells of which were mainly of the chromophobe variety. The chromophile cells, which are believed to produce the specific hormones of the anterior lobe, were wanting in these hypertrophies, and that would explain the hypopituitary syndrome.

Biochemial Assay of Tumors

LEWIS and Geschickter (19,b) reported the case of a Negro girl, aged 12 years, who had markedly hypertrophied breasts. There was a nodular mass in the left breast, which proved to be a typical fibroadenoma. A biochemical assay of this tumor showed that it contained six rat units of estrin per gram of tissue. In his report the biochemist said: "This is rather remarkable when we find that the maximum we can obtain from the hog's (sow's?) ovaries by an identical extraction procedure is about fifty to seventy-five units per pound of ovary. In other words, hog's (sow's?) ovaries contain approximately one unit to every nine grams of tissue, so that your breast tumor contains more than forty-five times as much estrin per unit weight."

Meigs (23) says that the granulosa cell tumor of the ovary secretes estrin or theelin. He reports five cases of granulosa cell tumors.

Owen and Cutler[11] have found that substances that act like the female sex hormone are to be obtained from the urine of patients with prostatic disease. But they are of the opinion that while benign prostatic hypertrophy and prostatic cancer may result from a long continued imbalance of sex hormones this imbalance is not apparent upon the usual bioassays for the prolans or the estrin-like compounds.

Lewis and Geschickter (19,c) have made bioassays of numerous tumors, both in animals and in man. No estrin was found in the mammary gland of a control rat. Neither estrin nor the gonadotropic hormone was obtained from the breasts of two human females, one aged 19, and the other past the menopause.

Two thousand units of estrin per kilo were recovered from a rat with a fibroadenoma of the breast and 1000 units in a rat with a fibrosarcoma of the breast. In one woman with a fibromyxoma of the breast no estrin was found; but 60,000 rat units of gonadotropic substance per kilo were recovered. In eight other fibromyxomata or fibroadenomata of the breast estrin varying from 200 to 18,000 rat units per kilo was recovered from all except one. In that one 2,500 units of gonadotropic substance per kilo were obtained.

In patients with cystic disease of the breast the lactogenic hormone and the estrogenic hormone were found in the cyst fluid. In some of the cases neither hormone was recovered. In the breast tissue of patients with cystic disease the estrogenic hormone was found in some and was absent in others. Estrin was recovered in amounts varying from 850 to 2,500 rat units per kilo in four cases of cancer out of thirteen cases examined. Estrin and the gonadotropic hormone have also been obtained by the authors from uterine myomata. From bone tumors they have obtained the parathy-

roid hormone, the growth hormone and the gonadtropic hormone, but not in all cases.

They say that no conclusions are to be drawn from the results reported concerning the causal relation between the hormones and tumor formation. The assays are merely recorded as facts. "The presence of these endocrine substances in new growths would seem, however, to have significance in the physiology of the growth and to explain, more satisfactorily than any theory yet advanced, why tissues in a new growth reproduce themselves locally and in metastases."

Mohs (10) reports the results of assays of the estrin content of adenofibromata of the rat compared with assays of striated muscle from the tumor-bearing animal. He was unable to demonstrate a high content of estrogenic substance in spontaneous and transplantable adenofibromata of the mammary glands. Flooding of the organism with estrin for two or three weeks prior to sacrifice failed to increase the estrin content of these tumors or of the control striated muscle to a demonstrable level. Only by injection of extremely high doses of estrin for two or three days prior to sacrifice was it possible to bring the estrin content of the tumors to demonstrable levels, and then the level was of the same order as found in the control muscle tissue.

Hence, he concludes that adenofibroma does not owe its growth power to an ability to concentrate estrin within itself.

Geschickter, Lewis and Hartman (35) in a paper entitled Tumors of the Breast Related to the Estrin Hormone, conclude that gynecomastia, virginal hypertrophy and fibroadenoma are dependent upon pathological variations in the action of the hormone estrin upon the duct epithelium and the surrounding connective tissue of the breast. That prolonged and uninterrupted stimulation by estrin rather than brief high concentration is necessary for the production of these conditions is supported by the following facts: (1) This form of hypertrophy is relatively easily produced in male animals which do not menstruate, when pathologic concentrations of estrin are present. (2) The lesions may be present in the breasts of girls for three to five years before they have begun to menstruate, when the breasts are normally subjected to constant stimulation with small amounts of estrin. (3) The lesions are present during the latter two-thirds of pregnancy, when there is an increasing concentration of estrin in the blood. (4) Experimental injection of repeated small doses of estrin into monkeys is more efficacious in reproducing the disease than large doses given over shorter periods. (5) Bioassay of the pathological tissues shows that they have a marked capacity to concentrate the hormone.

WITHERSPOON (32) is of the opinion that all forms of overgrowth of the endometrium and of the uterine musculature (uterine fibroids) are due to the influence of the estrogenic principle. He finds both clinical and pathologic support for this opinion.

Taylor (31) has reviewed 147 contributions to the discussion of the evidence for an endocrine factor in the etiology of mammary tumors. His conclusions, after this exhaustive study, are to the effect that at the present time the results of clinical and experimental work will receive "little approval" if one should attempt to define the stage to which the endocrine theory of the cause of breast cancer has arrived. He is of the opinion that there is no clinical evidence yet of any specific endocrine dysfunction as the cause of human breast cancer.

Summary of Literature

There seems to be a definite relationship between the ovarian hormones and the development of cancer of the breast and perhaps of the body of the uterus. The last word has by no means been said. The relation of the chronic irritation set up by the decomposition of retained secretions to the development of malignancy has not been estimated. We may sum up the evidence reviewed in this paper somewhat as follows:

(1) The menstrual cycle has no influence on breast cancer, Suntzeff and his co-workers, 1936.

(2) Pregnancy inhibits tumor growth, Mischenko, 1931. Has no influence on

tumor growth, Emge, 1934. Accelerates tumor growth, Loeb, 1902.

(3) Lactation accelerates tumor growth, Mischenko, 1931; Emge, 1934.

(4) Double oophorectomy is followed by arrest of the growth of cancer of the breast, Beatson, 1896; Patterson, 1936; and by diminution of cancer incidence in experimental animals, Lathrop and Loeb, 1916; Heiman and Krehbiel, 1936.

(5) Injection of the ovarian hormones, estrine or theelin, produces cancerous changes in the uterine cervix of monkeys, Overholser and Allen, 1935; Zondek, 1936. In the mammary glands of rats, McEuen, 1936; of mice Lacassagne, 1935 and 1936; Suntzeff and co-workers, 1936; Gardner and co-workers, 1936; Bagg, 1936. Produces metaplastic changes in the cylindrical epithelium of the cervix, but not malignancy, Zuckerman, 1937; increases the incidence of takes and the rapidity of the growth of transplanted tumors, Heiman and Krehbiel, 1936. On the other hand, Sugiura and Benedict, 1933, and Bishoff and Maxwell, 1936, failed to find any influence on the growth of transplants.

(6) Painting of the skin with estrin was followed by the development of cancer of the breast, Burrows, 1935; and Cramer and Hornin, 1936.

(7) The injection of prolactin had no effect on breast cancer, Bishoff and Maxwell, 1936.

(8) Injection of estrin caused pituitary dysfunction, Zondek, 1936; Cramer and Horning, 1936; and Lacassagne, 1936. In one mouse out of 679 the injection of estrin was associated with an anterior pituitary tumor, Burrows, 1936.

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Economics

Department Edited by Thomas A. McGoldrick, M.D., LL.D.

THE CASE AGAINST SOCIALIZED MEDICINE

THE combination of science and art which we call medicine, which has for its object the preservation and improvement of human health, is a complicated structure which has been built up slowly during long ages. The lines of its further development have been laid down quite definitely. A radical change of these lines in the direction of state socialism has been proposed. Following are some of the reasons why this proposition should be rejected.

1. The natural, the fundamental argument against socialized medicine, I will state in the words of an editorial which appeared in the *Medical Times and Long Island Medical Journal* of January, 1936.

Nature is the great teacher—she is always ready to teach those who have the ability and will to learn. To the advocates of socialism she gives an object lesson in the case of the bees.

Nature adopted in the beginning the law of evolution to govern the development of living things; but she was not above experimenting. She experimented with socialism. She tried it on the bees and some other insects. But she did not continue with it. She left those insects to their communistic life (and to serve as an example), and kept on with her evolutionary plan.

Why did nature not continue along the socialistic line? Why did she not repeal the evolutionary clause in her constitution and substitute for it the socialistic dogma? Evidently, because she found that the latter was not good.

Consider the case of the bees. They are an extreme example of socialized life; they are absolute communists. What do they get out of it? What do they lose by it?

They get a high degree of efficiency on a fixed but low level of existence. Most of them are worker bees; and those who are not worker bees have definite, prescribed duties which fill their lives. They work, are fed, and carry on their race on a monotonous, changeless plane of existence. Their evolutionary inheritance, their chance to improve, they have lost.

This is the essential fault of the socialistic dogma—it checks further progress, it makes for fixation of status, or for degeneration.

In this connection, however, it must be conceded that amendments may be made to the law of evolution to secure certain advantages of cooperation; but no such amendments can be made which nullify the law of evolution—that law remains supreme.

Man has advanced greatly under the evolutionary law. He has sometimes become elevated in his own conceit, so as to think that he knows what is good for himself better than nature does. The socialistic error is one into which at times and places he has shown a tendency to fall. Plato did so.

Some have been led by the lure of standardized efficiency into the error that medicine should be socialized. They do not realize how low would be the level of the standardization thus produced, relative to what it could be. They do not realize that socialization would not only lower the standardizable element in medicine, but would inhibit medical progress.

II. Medicine is an applied science. It is extremely complex in its practical applications. It requires an extensive knowledge of special sciences and also a considerable amount of practical training; and besides scientific knowledge and technical skill, it requires for the best accomplishment of its purpose, the exercise of the human qualities of sympathy, kindness and tact. It is not a fixed thing; it can not be produced and sold like groceries. In its practical applications it is based to a large extent on opinions. It is very largely individual, and depends on the character as well as the knowledge and skill of the individual practitioner. Its roots go deep into civilization, science and human nature.

The complexly organized, individualistic nature of medical practice constitutes in itself an argument against socialized medicine.

III. If medicine were socialized it would be subject to bad influences from politics. The general regulations as well as the administrative appointments controlling medical practice would be politically made. Can we believe that the politicians would always be endowed

with the knowledge and judgment necessary to enable them to make suitable regulations and appointments and that they would always make wise regulations and appointments, that they would always be actuated by altruism, and that they would always be resistant to improper influences? Is it not likely that a considerable number of the politically appointed officials would be below the desired standard, and that these inferior officials would have a demoralizing effect on the medical practitioners whose activities they controlled? To those who cherish the professional ideals which have gradually taken shape during the long process of the evolution of civilization and medicine, a politically controlled practice of medicine seems intrinsically wrong, as well as detrimental to the public interest.

IV. With socialized medicine the physician would be compelled to look to the state instead of to his patient for his remuneration. Would he not in such case lose an incentive to do his best work? Would not such a condition make for less careful treatment of the patient than would obtain under the private fee system?

V. The effect of socialized medicine on medical ethics would be destructive. Medical ethics is a beautiful and wonderful thing, which has always distinguished the medical profession. It is a guiding principle of professional conduct. It commands the physician to act always primarily for his patient's interest. Socialized medicine, by largely taking away the personal responsibility of the physician for his work, could hardly fail to weaken the influence of this beneficent guiding principle.

VI. Can there be any doubt that the effect of socialized medicine on medical philanthophy would be destructive? Of all the classes of philanthropic activity, there is hardly any one which can compare in extent with that exercised by the medical profession. Do the poor lack medical care? How large a proportion of the medical work done in the United States is paid for? Is one half of it paid for? Who pays the physicians for the services which they render to the poor in the hospitals of the country? In private and hospital practice the physicians are constantly giving an enormous amount of their work freely. With socialized medicine the state would pay for this work; it would assume the financial burden which the medical profession has been so generously carrying. Here appears an economic aspect of socialized medicine which should interest the taxpayers. It is evident, even if what the state pays for medical service is on a low wage scale, that socialized medicine would cost the people more than does the present system.

VII. With socialized medicine the people would pay more for their medical service, but would, at the same time, get a service inferior to that which they receive under the present system; for it can not be expected that the average physician would do as good work when the responsibility of his work is largely assumed by the state, as he would when he is personally responsible and when his rewards depend to a considerable extent on the quality of his work; to say nothing of the lowering of the average grade of the medical practitioners which socialized medicine would bring about. It could hardly fail to happen that routinism and carelessness in practice, as well as inefficiency, would be encouraged by socialized medicine.

VIII. The degradation of the medical profession which socialization would produce would naturally have a depressing effect on medical progress; and it would discourage the higher types of men from entering the profession.

IX. With socialized medicine the patient would lose the valuable, the priceless asset of confidence in his physician, which is fostered by the personal relationship between patient and physician that exists under the present system. With socialized medicine the relation between the patient and physician would not necessarily be other than formal; the physician would not necessarily have a personal interest in his patient.

X. It is true that a certain amount of state control and regulation of the medical profession and medical practice, and of public hygiene and sanitation—such, indeed, as now obtains in most civilized countries—is proper and desirable. And it is true that the medical care of the pauper class, when not provided for by the philanthropy of the medical profession, belongs properly to the state. This kind of state medicine, however, is quite different from that which has been proposed by the advocates of the socialistic plan.

E. E. C.

Cultural Medicine

HIGHLIGHTS IN THE HISTORY OF VACCINATION

JENNER'S CONTRIBUTION TO THE WORLD

AUGUSTUS HARRIS, M.D., F.A.C.S.

Brooklyn, N. Y.

THE object of this paper is to bring out some of the more important points in the revelopment of vaccination — some facts not generally known.

The story of vaccination comprises one of the most entertaining and inspiring chapters in medical history. It is worthy of note that the protective qualities of cowpox were apparently mentioned in the ancient Sanskrit texts. The occurrence of cowpox among dairy maids and farmers in the outlying districts of England had long been known to confer immunity to smallpox. To the writer it seems strange that more attention had not been paid to this long-known fact. It must be remembered, however, that these were the days before asepsis and the germ theory of disease. Severe wound infections were recorded not infrequently during the long period when smallpox inoculation itself was in vogue.

THE Hindus, Chinese and Persians had practiced inoculation for the ravages of smallpox a good many centuries B. C. In this manner the disease was produced, supposedly in milder form, and the patient isolated until recovery took place. This was accomplished usually by scarification and application of the pus from the eruption to the site selected for inoculation. The ancient and crude method of giving the disease was to blow the dried pus into a patient's nostrils or to clothe the victim in a garment soaked in pus. The disease was known to be very contagious and one attack conferred immunity.

While it is stated that Bartholin had referred to the method in Denmark in 1673, it remained for Lady Mary Montagu, the influential and talented wife of the then British Ambassador to Turkey to introduce artificial smallpox inoculation from Constantinople into England by first inoculating her own daughter with the disease in 1721. A few years before this event, interest in inoculation had been popularized in Turkey by the papers of Dr. Timoni of Constantinople, and of Dr. Pylorini of Venice. The published letters of Lady Montagu are very entertaining and tell the story of inoculation of people in groups who usually contracted the disease in milder form and with a shorter period of incubation. The majority of reports indicated a mortality of 1 to 3 per cent, although severe cases and fatalities were, at times, more frequent. The method proved sufficiently successful to maintain continued interest among certain people. Lady Mary mentioned the death of her sister's child from the pox, whose mother had two years previously refused to have her inoculated. The older method was to scarify the skin and to apply a thread soaked in pus. In

Presented before the Section of the History of Medicine of the Medical Society of the County of Kings April 9, 1937.

England the pus was applied to the raw surface and covered with a nutshell.

Although Spain was generally considered a backward country, she adopted smallpox inoculation at a relatively early period, and carried it on extensively. The disease was brought to North America by their early settlers in Mexico, where it wrought havoc with the Indians of that day, wiping out whole tribes and destroying about 40 per cent of them. Subsequently the disease was brought to the American Colonies and American Indians by the early settlers from Europe.

Humboldt states that in 1797 fifty to sixty thousand people were inoculated with smallpox in Mexico. It is to be noted that this occurred in the year after Jenner's successful cowpox vaccination.

It is of interest to know that the ideal method of injection was devised by Robert Sutton, who used a sharp lancet to inoculate a little of the serum of the vesicle, rather than the pus, well under the skin. Thus a wound and dressing could be avoided. Although Sutton commercialized his practice, he inoculated over twenty-five hundred persons in eleven years by a method which was far ahead of his time. He sold the pus to physicians outside of his own community and incurred the enmity of the medical colleagues of his community. He had the foresight to inoculate only those in good physical condition and took steps to improve the health of those below par before subjecting them to the procedure. History states that he never received due credit for this. Thomas Dimsdale (1712-1800), a leading authority in England, adopted Sutton's method in preference to others.

In spite of royal patronage, smallpox inoculation never became popular on the Continent. In fact, it was prohibited by law in France for a goodly period in the eighteenth century.

WHILE Lady Montagu's inoculated daughter was convalescing, an epidemic raged in Boston. This stimulated the Rev. Cotton Mather and his father, Rev. Increase Mather, both prominent and influential clergymen, to take up this so-called "Turkish" inoculation as popularized by Lady Montagu. Dr. Zabdiel Boylston was the only physician who could be prevailed upon to apply the method, which had met with great opposition both from the public and from the profession. However, he successfully inoculated his six-year-old son and published a celebrated pamphlet in 1730. Despite a raging epidemic, estimated to have attacked about one-half of the twelve thousand population of Boston, the new method met at first with violent opposition. This was said to be the sixth epidemic in that city. After Boylston's two hundred and eighty-two inoculations with a mortality of about 2 per cent, other physicians in and around the city took up the practice and it soon spread to the other American Colonies with a considerable degree of success. Fear of spreading the disease by those inoculated proved a definite hindrance and hazard, causing many to reject it. On the other hand, with each fresh occurrence of the disease many would quickly submit, as it had long been known and accepted that the inoculated infection was usually far milder and less dangerous than when it was acquired naturally. The incubation period was said to be shorter and pockmarks much less frequent.

BENJAMIN FRANKLIN, in 1759, wrote an interesting treatise on the value of smallpox inoculation. Thomas Jefferson was inoculated by this method at the age of twenty-three. George Washington contracted smallpox in 1751 while visiting the Barbadoes at the age of nineteen. He utilized inoculation extensively in the army of the Revolution and saved many of the soldiers from an epidemic. Inoculation proved fatal in only four out of five hundred persons at West Point. In 1777, all new troops were injected who never had had the disease. During this period, visitors from abroad commented on the absence of pockmarks on the faces of Americans. A Dr. Bond inoculated large numbers of soldiers in Cambridge, including many physicians. A further protection of great value was the establishment of permanent hospitals for variolation, kept open at all times for the reception and isolation of those inoculated.

THERE are two factors which probably had much to do with Edward Jenner's determined and thorough study and with final establishment of cowpox vaccination. First, when he was a healthy boy eight years of age (1757), he, too, was subjected to smallpox inoculation. At such an impressionable age, when the disease was so prevalent, he was compelled to submit to prolonged purging, bleeding and starvation by way of preparation for variolation. Although the resulting disease was mild, he was so run down that he remained delicate for some years afterward. This, surely, must have made a profound impression upon him. Second, as apprentice physician to Dr. Ludlow at the age of thirteen, he was stimulated by a country woman patient who told him that she could not take the disease as she had had cowpox. This absorbed his attention while having every opportunity to study the disease. Blindness resulting from it filled the asylums. Could he be expected to forget his experience of pain and suffering and prolonged weakness, when he was eight years of age? It is said that he spent some twenty-five years in the study of cowpox before his epoch-making presentation. Furthermore, it is significant that Jenner came under the training and influence of the great genius and surgeon, John Hunter. Jenner, like Hunter, was a naturalist as well as physician. They were great friends. He discussed the subject at length with Hunter, who urged him to try the cowpox and test it thoroughly and not to speculate but to prove. Jenner's first successful case was in 1796 in an eight-year-old boy, James Phipps, inoculated with cowpox from the hands of a milk maid. Six weeks later, immunity was proven by inoculation with smallpox, which caused no disease. In 1798, Jenner published his report. It may not be generally known that a farmer, Benjamin Jesty, successfully vaccinated his wife and two sons in this manner with cowpox in 1774. Fifteen years afterward the sons were proven to be immune to inoculation with smallpox. Also in Holstein in 1791, cowpox virus had been used but was discontinued because of severe associated infection. While of interest, these attempts do not detract in the slightest from the masterly and persevering studies of Jenner in describing the lesions of true cowpox and attaining his supreme victory in the face of great opposition and handicap. His original paper was not supported by the Medical Society. He met with much prejudice and professional jealousy. Failures of vaccination were reported by others, undoubtedly due to error in not identifying true cowpox, which he so fully and accurately described. In this manner he was opposed, at first, by the King's physician. Unfortunately, early failures in Scotland retarded recognition for twenty years in that country. The charlatans and antivaccinationists held forth and the early supply of virus was limited and difficult to preserve.

Jenner continued the arduous task until recognition was finally fully established. Three years after Jenner's report, C. R. Aiken (1801) gave a full description of all facts covering the method, including reports of large numbers of successful vaccinations by other physicians. In 1799, a publication on Jenner's work appeared in Germany and, shortly thereafter, a book in France and America.

IN the meantime, Benjamin Waterhouse, Professor of the Theory and Practice of Physic at Harvard University, received Jenner's paper, and, one year later, inoculated his four children with the cowpox lymph obtained from England. It was a natural sequence that he should take up the method, as he had studied in London and the University of Leyden and was known to Jenner and many leading British contemporaries. One of his children was exposed to smallpox, thereafter, and proven to be immune. He also vaccinated some of Thomas Jefferson's family.

Dr. Benjamin Waterhouse and Thomas Jefferson, after arduous work and great effort, finally established cowpox vaccination as a public health procedure in Massachusetts. They also introduced it to the American Indians, who were most grateful and honored Jenner by sending a wampum belt and letter of gratitude. The original letters of Dr. Benjamin Waterhouse and Thomas Jefferson tell the true story of the application of Jenner's method in America. These let-

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Archaeologica MEDICA

MARY TOFT, THE RABBIT BREEDER

BELIEVE it or not, this is a true story. Mary Toft (or Tofts), the rabbit breeder, was the subject of a number of eighteenth century "Case Reports" by naive medical men who seem to have shared in part the extraordinary popular delusion concerning this alleged mother of rabbits.

John Howard and Nathaniel St. André were credulous practitioners in close touch with the woman. Cyriacus Ahlers, surgeon to the King, made a guarded report—a copy of which was recently acquired by the Library of the Medical Society of the County of Kings, Brooklyn—in which was cited the suspicious circumstance that the intestines of the autopsied rabbits which had been delivered for his benefit by the indefatigable breeder contained hay, straw and corn! This finding, and Ahlers' cautious inference, suggests the technique of the Sherlock Holmes school of detectives. However, it took the professional acumen of Sir Richard Manningham, one of the chief accoucheurs of the day, to resolve all doubt.

Mary Toft was a resident of Godlyman (Godalming), in Surrey. She had been married for six years and had borne three children when she began to produce litters of rabbits following a fright by one of these animals while at work in a field in the year 1726. The Howard mentioned felt the animals leaping in her womb and officiated at her accouchement. He called St. André into consultation, the latter being then surgeon to Westminster Hospital. St. André was not only credulous, but he was of that publicity breed that makes the most in every age of circumstances calculated to excite the yokelry and delight the tabloid brethren or their equivalent. André arrived in time to deliver the fifteenth rabbit, which fact was attested by his companion, the Honourable Mr. Molyneux, secretary to the Prince of Wales.

AFTER the delivery, St. André examined his patient, and "found that in the course of the Fallopian tubes there were some inequalities, but more sensibly on the right side of her belly, which made me conjecture that the rabbits were bred in those tubes, and only came into the uterus . . . before their exclusion."

Like Ahlers later on, St. André noted the character of the intestinal contents of the rabbits. A few hours after he and Molyneux left the patient the patient's nurse delivered part of another rabbit. Still later the same day André completed the delivery. The birth of the animals was preceded in each case by what seemed to be labor pains.

All England was aflame with the news and King George I sent Ahlers to the scene. St. André reported two more rabbits. As we have stated, Ahlers' report did not settle the matter, so Queen Caroline took a hand and Sir Richard Manningham set to work upon the case and at once discovered that what the woman pretended to be a piece of chorion was really a piece of hog's bladder which had obviously been introduced into the vagina.

Sir Richard took the patient to London and with another obstetrician, Douglas, proceeded to study the case further. Mary started another labor shortly after the arrival in London, but had been detected in the procuring of a rabbit, through a porter, for the purpose of the labor. She was placed under arrest by one of His Majesty's Justices of the Peace and made

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From the Editorial Research Department of the MEDICAL TIMES.

The Dancing Master or Preternatural Anatomist
An Occult Philosopher searching into the
Depth of things ———

Cimiculariu
or
The Wise men of Godliman in
Consultation

D The Guilford Rabbet Man Midwife
E The Rabbet getter. ———
F The Ladies in the strain. ———

Contemporary Progress

+ Neurology +

Central Nervous System Complications in Subacute Bacterial Endocarditis

R. N. DE JONG (*Journal of Nervous and Mental Diseases, 85:397-410, April 1937*) reports that of 68 cases of bacterial endocarditis seen at the University of Michigan Hospital in the past five years, 17 showed clinical or pathological evidence of nervous system involvement. In 13 of these cases in which pathological examinations of the brain and meninges were made at autopsy, all showed pathological changes in these tissues. In 4 cases there was purulent metastatic meningo-encephalitis; in 6 cases, cerebral emboli or infarcts; secondary to emboli; in the 3 cases congestion and edema of the brain and meninges. Six patients were admitted to the hospital because of the nervous system complications; 2 of these patients showed symptoms of meningo-encephalitis, and 4 evidence of cerebral emboli. Two cases developed meningo-encephalitis while in the hospital; in one of these the condition was recognized clinically; 5 patients developed terminal emboli, in 2 of whom this complication was recognized clinically; in one case, subarachnoid hemorrhage was diagnosed clinically while the patient was in the hospital. The 3 cases in which congestion and edema were found pathologically did not show any clinical symptoms of involvement of the nervous system.

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COMMENT

A timely article. Its conclusions are not new but need restressing.

Frequently it is possible to anticipate or even suspect an unrecognized heart lesion because of the findings, clinically disclosed relative to the central nervous system. In every young adult developing a hemiplegia, the possibility of the "heart" being the cause of the hemiplegia should receive first consideration. Often this mere suspicion can only be proven at postmortem examination.

H.R.M.

Trichlorethylene in the Treatment of Migraine

H. S. RUBINSTEIN (*Archives of Neurology and Psychiatry, 37:638-640, March, 1937*) notes that trichlorethylene has been used for a number of years in the treatment of trigeminal neuralgia, and the results obtained indicate that this drug has an anesthetic effect upon this nerve. Because of these findings and because of "the preponderant innervation of the dura by the trigeminal nerve," the author tried the effect of trichlorethylene in the treatment of migraine. It was given by inhalation (ampules of 1

c.c.). In 6 cases in which this method has been used, it has been found possible to abort attacks in each instance; and it has also been observed that the interval between attacks has been definitely prolonged. The author concludes that trichlorethylene is a valuable adjunct in the treatment of migraine; it is true that it "fails to strike at the root of the difficulty," and should not be used to the exclusion of a careful survey of the patient in an attempt to determine and to treat the underlying cause. But it is an effective method of relieving symptoms and tends also to prolong the interval between attacks.

COMMENT

Where other measures fail, such as the use of ergotamine tartrate, or the use of theelin in the female, it would seem that we might use trichlorethylene as indicated by the author.

Theelin, in certain cases, works marvellously well. The reviewer has had three instances of complete arrest with this endocrine product. In one striking case, the headache was masked by a severe melancholia with delusions of persecution. Due to her mental state the facts of her past history were not obtainable with accuracy. On recovery, induced by the administration of theelin, she remarked, much to my surprise, that her "awful headaches" had disappeared.

H.R.M.

Effect of Benzedrine on Intelligence Scores

Shortly after Myerson reported the use of benzedrine sulphate in the relief of fatigue and depression (See Abstract in this Section, MEDICAL TIMES, March, 1937 p. 142), British physicians at the Maudsley Hospital, London, W. SARGENT and J. M. BLACKBURN (*Lancet, 2:1385-1387, December 12, 1936*) reported a study of the effect of benzedrine on the intelligence scores of patients at this Hospital. Twenty milligrams of benzedrine were given each patient in the test groups, and Cattell's intelligence tests were carried out one and a half hours later in one group and two and a half hours later in a second group. A control group was given inert tablets. It was found that the control group showed no average alteration in the score for the intelligence tests as compared with previous tests, while the groups given benzedrine showed an increase in the score of approximately 8 per cent. The improvement under the influence of benzedrine was more marked in patients with purely emotional upsets than in cases of schizophrenia with more pronounced personality changes.

COMMENT

A further contribution on the direct attack for the amelioration of mental symptoms. It would seem that the factors leading to an improvement in I.Q. readings must be closely related to the relief of fatigue and depression. The latter two conditions greatly reduce one's attention, concentration, and interest, and hence one's production.

H.R.M.

Encephalitis Due to Undulant Fever

E. P. McCULLAGH and H. M. CLODFELTER (*Annals of Internal Medicine, 10:1508-1513, April, 1937*) note that it has only recently been recognized that undulant fever occurs in the United States. They report 4 cases of encephalitis in which the diagnosis of undulant fever as the underlying cause was made by the agglutination test in 2 cases, and by intracutaneous tests in the other 2 cases. Two of the patients improved without specific treatment; one patient failed to improve until specific treatment with undulant fever vaccine was instituted; in the fourth case there was also some improvement under vaccine therapy which caused marked reactions. In one of the cases there was evidence of pituitary or hypothalamic damage. While in these cases it has not been absolutely demonstrated that undulant fever bacilli in the perivascular spaces or nervous tissue of the brain and cord were the cause of the encephalitis, the authors are of the opinion that "the findings are highly suggestive that such was the case."

COMMENT

This article draws attention to a cause which I am quite sure is not recognized by either internists or neurologists. If any such cases have passed through the hands of the reviewer they have been missed completely. The apparent benefit obtained through vaccine therapy is a point of interest in making this diagnosis, as so often we have so little

to offer in inflammatory conditions of the central nervous system.

H.R.M.

The Hypoglycemic Therapy of the Psychoses

M. SAKEL (*Bulletin of the New York Academy of Medicine, 13:97-109, March, 1937*) describes his method of the hypoglycemic treatment of the psychoses; his development of this method was based on observations made during the accidental production of "deep hypoglycemia" in the treatment of drug addiction. Results with this method depend on the "proper use and management of every single hypoglycemic shock," and on the termination of the shock at the right time in each instance. The treatment may be divided into four phases: Phase 1. The preparatory phase in which the patient is given gradually increasing doses of insulin once daily until hypoglycemic symptoms appear three or four hours after each injection. In this phase of the treatment, the daily injection is given early in the morning and four hours later a solution of glucose is given. The initial dose varies from 8 to 30 units of insulin according to the patient's physical condition and the duration of his illness; the dose is increased 5 to 10 units daily until the hypoglycemic symptoms appear. Phase 2. In the second or shock phase of the treatment, the dose necessary to produce hypoglycemic shock as determined in the first phase is given daily; the initial "shock" dose must sometimes be decreased; it is rarely necessary to increase it. Coma is terminated four or five hours after the insulin injection with a nasal tube feeding of 400 c.c. sugar solution containing 100 to 200 gm. sugar. If serious physical symptoms, or signs of impending collapse develop, the shock must be terminated quickly with intravenous glucose or adrenalin. The shock phase of the treatment is continued until "the desired results are achieved." Phase 3. This phase is no longer considered important; it consists of a day or more of rest if the patient is physically exhausted. Phase 4. In this terminal phase, lasting four to eight days, small doses of insulin are given and the hypoglycemia terminated in two hours with glucose. The author has observed that at first, hallucinations and other psychotic symptoms disappear only in the stage of hypoglycemia; as treatment progresses the lucid phases become more and more prolonged; at this time there may be a recurrence of symptoms during hypoglycemia, with normal personality persisting when the hypoglycemia is terminated. From his considerable experience with this treatment, the author has the impression that "every hypoglycemic state removes another portion of the psychosis and allows another bit more of the repressed normal personality to achieve dominance." The author has now treated over 300 cases of psychoses of various types (chiefly schizophrenia) by this method. In a review of his first 100 cases, he finds that in recent cases (not over six months' duration), 88 per cent had good or full remissions, of which 70 per cent were full remissions. In the cases of longer duration, the results varied with the duration of the illness; of the entire group 47 per cent showed good remissions with capacity to work; of which 19 per cent were full remissions.

Schizophrenia: Chemical Analysis of Blood and Cerebrospinal Fluid

S. KATZENELBOGEN (*Archives of Neurology, 37:881-894, April, 1937*) reports a study of the chemistry of the blood and spinal fluid in 20 schizophrenic patients from the Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital and the Maryland State Hospital at Catonsville. The blood and cerebrospinal fluid for analysis were obtained simultaneously from each patient before breakfast. The patients studied showed manifold schizophrenic symptoms, delusions of persecution and habit deterioration being conspicuously frequent. The duration of the psychoses varied, as far as could be determined from the history, from three months to fifteen years; in 10 cases the duration was one year or less. Values for 19 constituents of the blood and spinal fluid were determined in these cases. In only 3 of the 20 patients were the values for all these constituents within normal limits. In each of the other 17 patients, some component was abnormal either in the blood or the

cerebrospinal fluid, or both. The most frequent abnormal findings were: Potassium content increased in 8 cases; lactic acid content in 7 cases; cholesterol content of the cerebrospinal fluid increased in 7 cases; globulin content of the blood increased in 4 cases; amino-acid increased in 4 cases; calcium content decreased in the cerebrospinal fluid in 3 cases. In evaluating the potassium of the blood and the lactic acid of both blood and cerebrospinal fluid, allowance was made for the wide range of normal values; but the figures obtained in the cases cited were definitely beyond the normal range. The wide distribution of the abnormal chemical variations and the relatively small number of cases, the author notes, makes "any comparative evaluation of the clinical and laboratory findings" inadequate. The interesting point is that so large a percentage of schizophrenic patients showed some deviation from the normal for one or more chemical constituents of either the blood or the cerebrospinal fluid or both.

+ Physical Therapy +

Ultra-Violet Irradiation: Technique of Application

A. P. CAWADIAS (*British Journal of Physical Medicine, 11:225-229, April, 1937*) distinguishes between suberythematous and erythematous doses of ultra-violet rays. The patient feels and shows no outward effects of suberythematous doses, yet these doses have a definite biological action through this stimulus to the endocrine and neuro-vegetative function of the skin; they repeat "the normal stimulus the human body receives from natural sunlight." Erythematous doses of ultra-violet rays act by a different mechanism—by modification and often destruction of skin proteins, which are absorbed by the blood and against which the body defends itself. Treatment with erythematous doses, therefore, represent a protein shock treatment. For the administration of suberythematous doses, the patient should lie on a couch, first on the back, and then turning so that the back may be irradiated. The lamp should be at a distance of three feet; the time of the first irradiation is three minutes. Two days afterwards the patient is carefully examined to determine if any erythema is present; if any erythema is found, the lamp is either moved to a distance of four feet, or the time irradiation shortened to two minutes. If no erythema is present, the time of irradiation is lengthened by one minute. If no erythema appears at any time in the treatment, the time of irradiation may be lengthened by one minute (with the lamp at three feet) at each treatment until fourteen or fifteen treatments are given. Long continued treatments are not necessary or desirable. The position of the lamp should be changed in successive treatments, so that uniform irradiation of all parts of the body may be obtained in the course of treatment. Erythematous doses should not be given patients who are weak; it must be remembered that these treatments are a form of shock treatment in considering indications for their use. Erythema treatments must never be generalized, but given only over small surfaces. The physician must know the erythema-producing power of his apparatus; if he does not measure this by an instrument of precision, he may test it on himself. If erythema is not produced in any patient by the first irradiation, a second irradiation is given two or three days later with higher dosage. If erythema is produced, the following irradiation is given only after all reaction has entirely subsided.

COMMENT

Rational users of ultraviolet have always adopted the technique of sub-erythema doses for constitutional results. Enthusiasts and neophytes in this field have tried for the impression they could make upon their patients and hence have not as consistently achieved the optimum results. Even today some physicians, self-satisfied with their scant knowledge, burn their patients daily! Erythema reactions never should be allowed unless the condition being treated is a skin infection, and then massive erythema doses only should be used.

N.E.T.

Iontophoresis in the Treatment of Peripheral Vascular Diseases, Including Varicose Ulcers

D. W. KRAMER (*American Journal of Medical Sciences, 193:405-413, March, 1937*) describes the method of iontophoresis recently employed at Jefferson Medical College, Philadelphia, Penna., for the treatment of peripheral vascular diseases. Acetyl-beta-metylcholine chloride (mecholyl is employed for its vasodilating properties, in an aqueous solution of 0.25 to 0.2 per cent. Asbestos paper or cotton bandage (the author prefers the latter) is soaked in this solution and applied to the part to be treated. A spiral block-tin electrode, attached to the positive pole of the galvanic machine, is applied; a broad "dispersive" pad, placed firmly against the patient's back, is attached to the negative pole. The current is turned on slowly, increasing from 15 to 20 ma., and later to 25 to 30 ma. Treatments should last twenty to thirty minutes, and the current should be gradually reduced, not turned off abruptly. The treatment is usually followed in about half an hour by a feeling of warmth in the extremity treated and a lessening of fatigue; this may last only for several hours, in some cases for a day or two. Thirty cases of peripheral vascular disease have been treated by this method, including 11 cases of thrombo-angiitis obliterans; 8 cases of diabetic arteritis; 8 cases of vasospastic arterial disease; and 3 cases of phlebitis. Of the 11 cases of angiitis obliterans, 3 showed very definite improvement; 3 others a lesser degree of improvement; and 2 some temporary improvement. In the cases of diabetic arteritis, 5 of the 8 cases were definitely improved (all of these cases were insulin patients); all of the patients with vasospastic arterial disease and phlebitis were definitely benefited. In general the treatment had a more marked effect in relieving fatigue and cramps than in relieving pain; of 25 patients in whom pain was a symptom, 8 were not relieved; these failures were all in the groups of thromboangiitis obliterans and diabetic arteritis. This method of iontophoresis does not cure peripheral vascular disease of the types considered, but does give definite relief in many cases "by improving and increasing peripheral circulatory function."

J. KOVACS (*Archives of Physical Therapy, 18:103, February, 1937*) reports the treatment of varicose ulcers by iontophoresis, also employing acetyl-beta-metylcholine chloride, on the ground that varicose ulcers are a trophoneurotic disturbance due to pathologic circulatory conditions. Kovacs employs a 0.5 per cent solution of acetyl-beta-metylcholine chloride, saturating reinforced asbestos paper with this solution. This asbestos paper is wrapped around the foot and leg as high as the knee, but the ulcerated area itself is not covered until it is healed or at least covered by a firm crust. For the active electrode a malleable iron plate is employed, which is placed over the wet asbestos paper and attached to the positive pole of the machine; this electrode, however, is never applied directly over the ulcerated area. A large moist pad electrode is placed against the patient's back, and attached to the negative pole. The current is turned on slowly up to 20 or 30 ma.; at the end of the treatment it is turned off slowly. Treatments last from twenty to thirty minutes and are generally given two to three times a week, sometimes daily. The characteristic local reaction at the site of the application of the drug consists in: A sensation of prickling followed by one of warmth during the treatment; the appearance of goose-flesh immediately after removing the paper; a local blush of the skin; sweating of the skin that may continue for six to eight hours; an elevation of skin temperature during the treatment followed by a drop during profuse sweating and then a second rise, in one-half to five hours. There may be a systemic reaction, which is of the same type as that following subcutaneous or intravenous medication, but with iontophoresis the general reaction is "practically always" very mild. The author has treated 54 cases of chronic varicose ulcer by this method; 11 of the patients are still under treatment. Of the 43 patients whose treatment has been completed, all but 2 have shown satisfactory healing of the ulcer.

COMMENT

The use of mecholyl, applied by the galvanic current, is attracting a good deal of attention these days. It has many enthusiastic supporters who try it for every condition they see. A year or so ago it was hailed as the great cure for arthritis but that cry has slowly diminished. It is possible that the absorption of this substance under the skin has some constitutional effect. Other saline solutions applied in the same way produce practically similar counterirritation, so any specificity for this drug remains to be proven.

N.E.T.

Blood Picture Before and After Fever Therapy by Physical Means

F. H. KRUSEN (*American Journal of Medical Sciences, 193:470-474, April, 1937*) reports a study of the blood picture before and after artificial fever therapy. The artificial fever was produced in the cases studied by means of an air-conditioned cabinet (Kettering hypertherm), for which there is accurate control of air temperature, relative humidity and air velocity. In the first study both capillary and venous blood counts were made, but little difference was found between the two counts, indicating that the high capillary counts found were not due to surface hyperemia. However in the subsequent studies venous counts were used, as it was felt that they might be "slightly more accurate" than capillary counts. In 100 patients in whom blood counts were made before and five hours after artificial fever therapy which raised the body temperature to 104° to 106°F. for three to seven hours, it was found that after fever therapy there was a definite leucocytosis (average count 11,269), which cannot be attributed to the concentration of blood; there was also a slight increase in the red cell count, which is probably due to concentration of blood. Differential counts show a relative increase in the neutrophile and a relative decrease in the lymphocytes. In 52 patients in whom the body temperature was raised to 105°F. or above, the increase in leucocytes was more marked (average count 12,470) and the relative increase in neutrophiles and decrease in lymphocytes was also greater than in the series as a whole or in 48 patients in whom the body temperature was not raised to 105°F. In 72 tests in which the neutrophile hemogram was studied, only a very slight shift to the left was shown five hours after the fever therapy, which is not comparable with the shift to the left after malarial fever therapy. A comment by H. H. Hargraves added to this article at the author's request states that the findings of the author are in accord with those of Hargraves for the period studied—i.e., five hours after fever therapy. The findings, however, do not show the typical blood changes as determined by Hargraves by multiple serial counts in the postfebrile period. Such serial counts show a very constant "febrile hemogram," characterized by leucocytosis, the duration and extent of which is directly related to the duration and height of the fever; an increase in polymorphonuclear leucocytes, which is responsible for the leucocytosis; and an increase in the younger polymorphonuclear cells which indicates a true bone marrow response.

COMMENT

Researches by all hematologists show that artificial fever consistently affects the bone marrow and calls out leucocytes. Bierman was the first to show that repeated doses of fever can even tire the bone marrow so that the leucocytosis diminishes on successive periods of elevated fever. Doan has shown histologic evidence of the same effect and pointed out, however, that no such stimulative effect is brought about in lymphatic tissues, thus explaining the lymphopenia.

This consistent action of fever may be an incentive to use fever in patients when such leucocytosis is useful, as in pneumonia.

N.E.T.

Roentgen-Ray Treatment of Erysipelas

R. LÖHR (*Deutsche Zeitschrift für Chirurgie, 248:497-509, Jan. 15, 1937*) reports the treatment of erysipelas with the Roentgen rays with a dosage varying from 10 to 60 r (measured at the surface). The best results were obtained with small doses, large fields, relatively soft rays, and early treatment. Treatments were given daily with small doses until the temperature began to fall. In 100 cases treated with Roentgen rays as compared with 104 cases not irradiated, it was found that the uncomplicated cases

(non-suppurative) showed a definite diminution of the duration of the disease under Roentgen-ray treatment, as compared with the non-irradiated cases; 57 of the irradiated cases showed regression of the lesion after the first x-ray treatment. Erysipeloid lesions on the fingers and hands showed prompt regression after treatment with a 10 per cent skin erythema dose.

COMMENT

The work of Titus, Knapp and Jenkins has shown how safe and prompt massive doses of ultraviolet light are in erysipelas, so that one hesitates to recommend x-ray with our knowledge of possible latent effects.
N.E.T.

Public Health, Industrial Medicine and Social Hygiene

The New York State Program For Syphilis Control

E. S. GODFREY, JR., (*Journal of the American Medical Association, 108:793-795, March 6, 1937*) notes that the New York State program for syphilis control provides first for reporting cases of syphilis to the local or district health officer (the latter in smaller communities); report may be made by the patient's initial if the physician does not wish to reveal the name. Because prompt diagnosis and treatment are so important in the control of syphilis, serologic examinations by public health laboratories are made for physicians free of charge; and since Jan. 1, 1936, arsenic and bismuth have been supplied to physicians. The physician must report patients who lapse from treatment, and in some communities these patients are followed up by the health authorities; in smaller communities further organization of this follow-up service is necessary. Aid is granted to cities who maintain an adequate control program, including record keeping, maintenance of clinics and case investigation. In certain cities special effort has been made to determine the source of infection in early infectious cases. The State Health Department also carries on activities for education of the layman.

Carrier-Borne Typhoid Fever In New York State

E. L. STEBBINS and E. REED (*American Journal of Public Health, 27:233-240, March, 1937*) note that the first typhoid carrier in New York State was detected in 1911. Since that time there has been an increasing effort to detect and control typhoid carriers and up to Jan. 1, 1936, 570 typhoid carriers had been declared in the State. The epidemiological investigation of sporadic cases of typhoid fever has been found to be the most effective method of detecting carriers; 72 per cent of human typhoid carriers were detected by this method. Detection of carriers after recovery from clinical typhoid fever depends upon the rigidity of the requirements for the follow-up of such patients; since 1929 release requirements have been well enforced in New York State, and any person excreting *B. typhosus* for one year following the onset of typhoid fever has been declared to be a chronic typhoid carrier; by this means 54 typhoid carriers were detected in 1930-1934, averaging 2.5 per cent of the total number of cases of typhoid fever reported. A study of the incidence of typhoid fever among household contacts of typhoid carriers shows this to be 42 times that of the general population. The duration of exposure to the carrier was found to be of greater importance than the "carrier age" (length of time the person had been a carrier since the acute illness), in the determination of the attack rates in a household. The highest attack rate occurred in the first five years of exposure; this would indicate that the carrier does tend either to infect or to immunize persons in his immediate environment in a few years, but insufficient data are available to establish this conclusion with certainty. Typhoid vaccination is effective in protecting contacts of typhoid carriers; 36 per cent of contacts were found to have been vaccinated after discovery of the carrier, and 3 per cent previously. The attack rate of typhoid fever was five times as great in the unvaccinated contacts as in these vaccinated contacts. This includes many individuals under con-

tinued exposure for one to twenty-five years and averaging four years after vaccination.

The private physician should push the vaccination of all his patients against typhoid. It is deplorable that in the above study only 3 per cent of contacts had been vaccinated prior to discovery of the carrier. W.C.

Control of Septic Sore Throat

G. J. HUCKER (*American Journal of Public Health, 27:313-320, April 1937*) notes that public health reports of the incidence of scarlet fever show an increased incidence of this disease in urban populations; and scarlet fever is recognized as a disease that is spread primarily by contact. Reports on the incidence of septic sore throat do not indicate any definite correlation with urban, village or rural population, nor is this disease confined to any section of the United States. In New York State, where a special study was made of 60 epidemics of septic sore throat occurring in the past ten years, it was found that the majority of these epidemics occurred in the smaller communities (under 10,000 population). All but 2 of these epidemics were traced to the consumption of raw milk, and in one of 2 epidemics in which pasteurized milk had been used, the milk was reported as being "improperly pasteurized." In districts where a careful study is made of the source of epidemics of septic sore throat, it can usually be traced to raw milk supplies. Such studies have indicated that the organism responsible for septic sore throat is not the streptococcus associated with ordinary bovine mastitis, but is a human type of pyogenic streptococcus. This organism is not passed from cow to cow. Hence in an outbreak of septic sore throat, in which infected milk is the source of infection, the mere presence of an udder infection in a particular cow of the dairy herd, does not indicate that this animal should be incriminated. The organisms from the animal must be isolated and identified. If the human pyogenic streptococcus is found in the milk and in the udders of one or more cows from the dairy herd, a human source of the infection is usually to be found among the milkers. The control of septic sore throat is best effected through the proper pasteurization of milk, as none of the human pyogenic streptococcus have been found to resist proper pasteurization temperatures. If this is not possible in any case of a septic sore throat outbreak, the infected cow or cows must be identified and removed from the dairy herd; and the human carrier—milker or milk handler—identified and kept from contact with the herd or the milk until rid of his infection.

Hernia in Industry

J. R. NILSSON (*Surgery, Gynecology and Obstetrics, 64:400-402, Feb. 15, 1937*) reports an examination of 7,967 men employed in the operation and movement of trains of the Union Pacific Railroad (eastern district). Three hundred eighty-three of these men gave a history of a previous hernia operation; and 377 new cases of hernia (including potential hernia) were found, making a total of 760 cases of hernia or 95 per 1,000 employes examined. Employees willing to submit to operation for hernia are operated; if the operative result is good and the man has only light or clerical duty to perform, he is returned to work in four to six weeks. If he has heavy labor to perform, an attempt is made to change his work on the same payroll classification for a few months. Every employee who is known to have a hernia or to have been operated for hernia is examined every two years; if he elects to wear a truss rather than be operated, he is examined at more frequent intervals. The incidence of recurrence of hernia among railroad men has been found to be higher than is reported in large general clinics (7 per cent) but the author believes this may be due to the fact that a more careful follow-up is possible in the railroad service.

Occupational Lung Cancer

L. TELEKY (*Journal of Industrial Hygiene and Toxicology, 19:73-85, February, 1937*) reports a review of investigations on the subject of occupational lung cancer from which he finds that there is no evidence that the inhalation of the usual industrial dusts gives rise to lung cancer. Only two industrial causes for lung cancer have been found: Inhalation of chromate dust in chromate

factories produces a relatively high incidence of lung cancer and perhaps also cancer of the digestive tract. Cancer of the lung among chromate workers was reported more frequently formerly than in recent years; this is to be attributed to the opening of more modern factories in which hygienic conditions are fundamentally changed with much less dust hazard. Inhalations of radium emanations, possibly supplemented by radium-containing dusts, among radium ore miners is the chief cause of industrial lung cancer. Investigations of the mines of Schneeberg (Saxony) and St. Joachimstal (Czechoslovakia) have shown so high an incidence of lung cancer that "probably the greater part of these men" die of this disease. Lung cancer has also been observed in workers in radium laboratories; but the chief industrial problem is among the miners.

Inadequate Treatment of Early Syphilis

P. D. ROSAHN (*American Journal of Medical Sciences, 193:534-543, April, 1937*) reports a follow-up study of 409 patients with syphilis in whom the early treatment for the disease had been inadequate according to present-day standards. Of these 134, or 32.8 per cent., showed a "satisfactory result" in that they presented no evidence of syphilis clinically or serologically (including spinal fluid tests), one year or more after the cessation of treatment; most of these patients (117, or 87.3 per cent.) were followed up for over two years after the cessation of treatment. The most serious danger confronting these patients appears to be the possibility of a late cardiovascular recurrence. The highest percentage of satisfactory results was observed in the cases in which treatment (although inadequate) was given in the seronegative primary stage. The most important type of unsatisfactory result from inadequate treatment from a public health point of view is an infectious relapse; this occurred in only 3.7 per cent. of this group—a lower incidence than that reported by others following inadequate treatment. The author points out that while inadequate treatment in early syphilis produces a certain percentage of satisfactory results, an adequate treatment-scheme produces better results and should be enforced as far as possible.

COMMENT

By far the greatest danger of inadequate treatment is infectious relapse.

W.C.

+ Ophthalmology +

Sympathetic Ophthalmia

D. H. TROWBRIDGE, JR., (*American Journal of Ophthalmology, 20:135-148, February, 1937*) reports a study of 32 cases of sympathetic ophthalmia. In this series 24 of the patients were males and 8 were females; this sex incidence is probably due to the fact that males are more apt to be employed in industrial pursuits predisposing to ocular injuries. Perforating injuries and onset of sympathetic ophthalmia occurred twice as frequently in the period between October and April as between May and September. The age of the patients ranged from four and a half to sixty-seven years. From his review of this series of cases, the author finds that: Sympathetic ophthalmia may follow non-perforating as well as perforating injuries, or may develop if a necrotic intra-ocular tumor is present in one eye. The "exciting" eye is usually soft and shrinking with greatly impaired or totally lost vision at the time of the outbreak of inflammation in the opposite eye. Perforating wounds of the cornea or at the limbus may result in sympathetic ophthalmia as well as wounds involving the ciliary body. Unhealed wounds in any region of the "exciting" eye are most apt to cause sympathetic ophthalmia. The time interval between the injury and the onset of sympathetic ophthalmia does not appear to influence the result of the eye secondarily involved; but a long delay between the onset of sympathetic ophthalmia and removal of the exciting eye has an unfavorable effect. The most common symptoms at the onset of sympathetic ophthalmia are photophobia, lacrimation, ciliary injection, cells in the aqueous and deposits on the posterior corneal surface or the anterior lens

capsule, frequently accompanied by some visual impairment. But occasionally neuroretinitis may be the earliest sign of "impending sympathetic inflammation," and a sudden increase in refraction may precede more definite signs of inflammation by several days. The prognosis for the sympathizing eye cannot be based on the extent or location of the specific infiltrate in the exciting eye; the extent of pigment phagocytosis or of change in the retinal pigment in the exciting eye also does not affect the prognosis for the sympathizing eye. In some cases removal of foci of infection and in others ultra-violet irradiation of the entire body had a favorable effect in the treatment of the sympathetic ophthalmia.

In the same issue of the *American Journal of Ophthalmology*, (pp. 181-182) L. T. SIMONS and F. J. PRATT report a case of sympathetic ophthalmia in which, after enucleation of the exciting eye, fever therapy, especially by means of diathermy, was found to be the most effective method of controlling and eventually clearing up the sympathetic lesion.

COMMENT

There seems to be a tendency to look upon sympathetic ophthalmia as a possible sensitization phenomenon identical with, or akin to, those peculiar sensitization lesions which we assume are responses to a quiescent tuberculous focus. The participation in this reaction of tissue which is apparently derived from ectoderm again links up these phenomena with lens protein reactions (which also involve tissue of ectoderm origin).

J.N.E.

Fish Lens Protein and Cataract

R. F. SHROPSHIRE (*Archives of Ophthalmology, 17:505-512, March, 1937*) notes that there have been many theories in regard to the etiology of cataract. Some investigators have recently maintained that there is some relationship, as yet obscure, between various lenticular antigens; and that the changes in the cells of the lens in cataract are related to some unidentified property of proteins. Hektoen, in his immunological studies, found that animals sensitized with mammalian lens protein gave a positive precipitin reaction with the extracts of the lenticular proteins of all living organisms tested except the fish. Animals sensitized with fish lens protein gave positive precipitin reactions only with extract of fish lens protein (all species of fish), not with lens protein of any other type. On the basis of these findings, F. Park Lewis, of Buffalo, began the treatment of cataract by the injection of fish lens protein; in 1933 he reported 123 patients treated, of whom 82 had been given three or more treatments. Of these, 71 showed a definite improvement in vision and 11 no change (gain or loss). Since that time, the author has treated "numerous" patients by the administration of fish lens protein; he reports one illustrative case, illustrating an average result—"not a particularly demonstrative case." In this case the vision improved in the right eye from 20/100 to 20/40 and in the left eye from 20/80 to 20/30; both eyes appeared definitely clearer. In a chemical study of fish lens proteins, the author found that the relative percentages in which various crystallins occur differ from those of mammalian lens crystallins, and also "the elementary composition of their components is different." Further studies indicated the presence of a sulphur-bearing amino-acid in fish lens protein which has not been previously described, as it is neither cystine nor methionine; he believes that this amino-acid "by its reaction as an autoxidizing agent is of therapeutic value."

Malaria and the Eye

A. E. GOLDFERBER and V. D. MOLDAVSKAJA of the Ukrainian Institute of Kharkoff, U.S.S.R., (*Archives of Ophthalmology, 17:228-233, February, 1937*) note that while involvement of the eye in malaria has been recognized for some time, it has not been equally well recognized that ocular disease of various types may be due to unrecognized and latent forms of malaria. In certain obscure cases of ocular disease, in which no cause could be found by the usual methods, the authors have made a diagnosis of malaria by using the melanoflocculation reaction of Henry. In such cases the ocular lesions cleared up completely or greatly improved under antimalarial treatment, and were not influenced by any other form of treatment. In malarial disease of the eye, any

portion of the eye may be affected—the conjunctiva, the cornea, the retina, the intrabulbar or rectrobulbar portion of the optic nerve (optic neuritis) or the oculomotor nerve (accomodation). In the retina, the authors have found that bluish gray stripes forming a network lying over and under the retinal blood vessels to be characteristic of malarial involvement of the retina; otherwise nothing distinctive in the ocular findings is noted.

COMMENT

It is not always easy to separate the action of malaria and the action of quinine in involvement of ocular structures, so that the physician is cautioned not to jump at conclusions when damage appears. The work of Elliot, of Ward Holden, and of de-Schweinitz should be consulted.

J.N.E.

Ocular Paralysis Following Mumps

T. H. BUTLER, and A. J. WILSON (*British Medical Journal, 1:752-753, April 10, 1937*) report 2 cases in which paralysis of the third cranial nerve followed an attack of mumps; in one case the intrinsic muscles of the eye were paralysed on both sides; in the other both the intrinsic and the extrinsic muscles were paralyzed on the left side. In the first case the condition entirely cleared up; but in the second case slight defect of convergence and abduction and complete inactivity of the pupil persisted for over a year. As a meningeal reaction is frequent in uncomplicated mumps without signs of cerebral involvement, the authors are of the opinion that such cranial nerve involvement may be due to a lesion of the nerve trunk near its root.

Acetylcholine in the Treatment of Acute Retrobulbar Neuritis

W. F. DUGGAN (*Archives of Ophthalmology, 17:579-585, April, 1937*) notes that vasodilators such as sodium nitrite given intravenously and amyl nitrite by inhalation have been found to be effective in acute retrobulbar neuritis. The use of acetylcholine—"a powerful but little used dilator"—has been reported by a few authors (chiefly French) in the treatment of retrobulbar neuritis. The author used acetylcholine given by intramuscular injection in the treatment of 2 cases of acute retrobulbar neuritis; in the first case injections of 0.1 gm. acetylcholine were given every three days; in the second case, injections were given daily. The improvement was more rapid in the second case, the best final vision being obtained in five days in this case, in ten days in the first case. The author has previously reported 8 cases of acute retrobulbar neuritis treated with intravenous injections of sodium nitrites, or, in one case, inhalations of amyl nitrite. All but one of these patients showed definite improvement, the best final vision being attained in an average of eight and a half days. The results with acetylcholine thus compare favorably with those obtained with other vasodilators. The treatment is simple for both the physician and the patient, the author notes; and "deserves further investigation by ophthalmologists before its actual value can be definitely evaluated."

COMMENT

The use of vasodilators in the treatment of retrobulbar neuritis is, of course, based on the assumption that closure by spasm is the mechanism back of the decreased vision. Hence, vasodilators might be looked upon in this respect as a pharmacological antidote. It would be more logical could the actual toxin be destroyed. All workers have not succeeded in duplicating the results obtained by Duggan.

J.N.E.

Iodized Oil Technic in Pterygium Cases

T. J. DIMITRY (*New York State Journal of Medicine, 37:719-722, April 15, 1937*) reports the use of iodized oil in the treatment of pterygium. An injection of the iodized oil is made into the pterygium starting at about 3 mm. in and 3 mm. away from the corneoscleral margin; this causes a "ballooning" of the pterygium from the head to the base. The head is then severed from the body of the pterygium, using a Wheeler knife and cutting "in a see-saw movement." The head of the pterygium is then pulled or stripped from the cornea with

—Concluded on page 328

Medical Book News

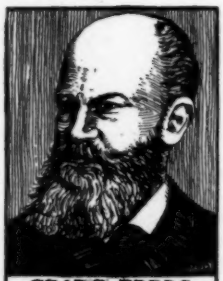
Edited by TASKER HOWARD, M.D.

All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn, New York.

Factors Bearing on Obstetric Mortality

SAFE CHILDBIRTH: The Three Essentials. Round Brim, Flexible Joints, Natural Posture. By Kathleen O. Vaughan, M.B. Baltimore, William Wood & Company, [c. 1937]. 154 pages, illustrated. 8vo. Cloth, $3.00.

The three essentials, as described in the subtitle, are round brim, flexible joints, and natural posture. This is the whole story of Dr. Vaughan's book. The brim should be circular, and its shape determines the capacity of the pelvis; the more oval the pelvis, the less its area. Doctors and midwives are not to blame for the present high rate of maternal mortality; mothers and teachers are responsible for errors in regard to food, light and exercise. Neglect of the squatting position for defecation, and wearing high heels are outstanding factors. Heels in America, Dr. Vaughan says, may be as high as ten inches, but this reviewer has never seen or heard of anything like that.



GEORG EBERS
1837-1898

Classical Quotations

● "In the heart are the vessels to the whole body. As to these, every physician . . . will feel them when he lays his hand on the head, on the back of the head, on the hands, on the stomach, on the arms, on the legs. Everywhere he feels the heart because its vessels run to each of his limbs."

> **Papyrus Ebers.** Written about 1500 B.C. as a compilation of records going back to the First Dynasty (*circa* 3400 B.C.). Obtained by Georg Ebers at Thebes in 1872.

Very interesting descriptions of parturition in far corners of the earth, and the author's own observations, seem to support her case. There can be no doubt, as Dr. Howard Kelly says in the foreword, that her conclusions are of real importance and deserve careful consideration. An excellent bibliography is appended.

CHARLES A. GORDON.

Eighth Edition of an Operative Surgery

THE OPERATIONS OF SURGERY. By R. P. Rowlands, F.R.C.S. & Philip Turner, F.R.C.S. Eighth edition, volume II, The Abdomen. Baltimore, William Wood & Company, [c. 1937]. 998 pages, illustrated. 4to. Cloth, $10.00.

The literary tree of this work is traced to *Jacobson's Operations of Surgery* published first in 1889, periodically brought up to date by the late R. P. Rowlands, and more recently revivified by Philip Turner and Associates at Guy's Hospital, London. Its longevity and sponsors bespeak its worth.

This volume is devoted to operations on the abdomen. The revisions and rewritings are by Ogilvie and Thompson. Chapters on Hernia, the Spleen, Pancreas, Rectum and Anus, are by the former. Operations on the male genito urinary system are written by the latter. Gynecological operations are presented by Gibberd. A section on Thoracic Surgery is written by Brock. Recent develop-

ments in various fields, conclude the work.

This work has stood the test of many years and has not been found wanting in clear descriptions of technic. Its judgments are good, its appraisals sane and its estimates conservative. It is a thoroughly safe book for students and practictioners, and deserves to don the mantle of Elisha which has fallen upon it from Elijah.

ROYAL H. FOWLER.

Study in Periodic Health Examination

HEALTHY GROWTH. A Study of the Influence of Health Education on Growth and Development of School Children. By Martha C. Hardy, PhD. and Carolyn H. Hoefer, M.A. Chicago, The University of Chicago Press, [c. 1936]. 360 pages, illustrated. 8vo. Cloth, $3.50.

This book represents conclusions drawn from the study of the effects of a health project on growth. Yearly physical examinations were carried out with correction of physical conditions. Generally those children who had the greatest contact with the health program, showed much more improvement than those who did not. With respect to growth curves, the maximum gain in growth occurred in boys from ten to eleven, whereas with girls, there was no outstanding period. Mental studies were made of 409 elementary school pupils. In general, those who were given health instruction, appeared to show more rapid growth with respect to their general mental ability and speed of learning. Similar studies were carried out with respect to school progress, interest, attitudes and behavior adjustment.

This book will have its greatest use for those who wish to carry out a specific study along the lines mentioned in this work.

STANLEY S. LAMM.

Sherman Revised

CHEMISTRY OF FOOD AND NUTRITION. By Henry C. Sherman, Ph.D. Fifth edition completely rewritten. New York, The Macmillan Company, [c. 1937]. 640 pages, illustrated. 8vo. Cloth, $3.00.

Sherman's opinion on the chemistry of food and nutrition has the distinction of causing almost no controversy. His values for the optimal adult dietary are undisputed. Those who do not know of Sherman's work must obtain a copy to learn what rational diet requirements are.

The lay public cannot be held responsible for erroneous beliefs, extreme misrepresentations, in advertising on foods and diet, and especially in recent months on vitamins. We, the medical profession, must admit that medical education is sadly deficient in diet instruction. The majority of the profession have only vague concepts of the fundamentals of nutrition.

Sherman's text on the chemistry of food and nutrition is not a book of diet lists to prescribe for a patient, as treatment for any particular disease, but is a book dealing with fundamentals of nutrition. His presentation does not require a background of advanced chemistry or metabolism. It is of much value to every physician.

To those who know Sherman, this, the fifth edition, has been thoroughly revised and the recent references of 1935 and 1936 are included to bring all sections up to date of printing.

PAUL C. ESCHWEILER.

The Abraham Flexner Lectures at Vanderbilt

LECTURES ON EMBOLISM AND OTHER SURGICAL SUBJECTS. By Gunnar Nystrom, M.D. The Abraham Flexner Lectures, Series Number Four. Baltimore, The Williams & Wilkins Company, [c. 1936]. 213 pages, illustrated. 8vo. Cloth, $3.00.

This volume, containing 213 pages with black and white drawings and a few photographs of appartus and patients, represents the Abraham Flexner lectures which were given at Vanderbilt University in 1936 by Dr. Gunnar Nystrom. There are five chapters each one of which represents a lecture. The first two chapters are devoted to embolism, both pulmonary and of arteries of the extremities. The third chapter is devoted to Swedish experiences and appendicitis. The fourth chapter has to do with the Cytology of Gunnar Nystrom as an aid in diagnosis. The fifth chapter discusses the treatment of medial fractures of the collum femoris. This last chapter is certainly a very interesting one because it discusses Swedish experiences in the treatment of fracture of the neck of the femur. The use of flanged nails and plaster are discussed in a very practical manner. This is a method described by Dr. Sven Johansson.

Dr. Nystrom is well known in this country for his work in pulmonary embolism. He discusses his experiences in surgical treatment of this condition and certainly his results in the few who have survived is nothing short of remarkable.

This is an unusually interesting volume and Vanderbilt University should be commended for having these lectures put into book form.

HERBERT T. WIKLE.

The Means and Meaning of Laboratory Tests

CLINICAL LABORATORY DIAGNOSIS. By Samuel A. Levinson, M.D. and Robert P. MacFate, Ch.E. Philadelphia, Lea & Febiger. [c. 1937]. 877 pages, illustrated. 8vo. Cloth, $9.50.

Clinical Laboratory Diagnosis by Levinson and MacFate is a welcome addition to the rapidly increasing collection of books in this field. Encompassed in a relatively small volume of 814 pages is a wealth of ready-reference information for the laboratory worker and clinician. The subject matter is divided in an original manner; so that tests described are correlated to pathologic conditions and symptomatology.

Tests have been chosen with discrimination and are described in outline form, succinctly and clearly. Many tables depicting normal and abnormal values are interspersed throughout and will serve for reference. The book is profusely and brilliantly illustrated; the colored prints deserve special mention. The appendix contains much practical information, such as the preparation of normal solutions, samples of report sheets and laboratory record cards, etc. The work certainly represents a thorough and painstaking effort culminating in a successful and praiseworthy book of interest and value to every doctor and technician interested in laboratory work. It is as complete and authoritative a work as has yet appeared in so small a volume.

MAX LEDERER.

New Edition of Krusen's Book on Heliotherapy

LIGHT THERAPY. By Frank Hammond Krusen, M.D. Second edition, revised and enlarged. New York, Paul B. Hoeber, Inc., [c. 1937]. 238 pages, illustrated. 8vo. Cloth, $3.50.

If there is any group of modalities that is in the universal employ of the general practitioner and specialist, it is that group of electromagnetic waves, visible and invisible, known as light. And if any group of modalities is used with more empiricism than any other, it is this same light. Hence, any book that will help the physician, be he general man or specialist, to crystallize in his own mind, the rational of application of these rays, is well worth the effort in its preparation by the author, and its careful perusal by the reader. Such is "Light Therapy."

Written in a clear, didactic to the point of repetition, and simple language, the subject of ultraviolet, visible, and infrared radiation is covered from the fundamental, elementary aspects of their physical and physiologic effects, the technique of general and local application, their indications, and their contraindications and dangers. The prevalent tendency of ultraviolet radiation for the total index of diseases, from "Acne to Zoster," is mildly, almost too gently, condemned by a very conservative author, who keeps both feet on terra firma, and refuses to permit his evident enthusiasm for his subject, to blind his appreciation of its present limitations, though clearly recognizing its future potentialities. And so, the number of indications is kept to the very minimum of provable and generally accepted conditions, with the possible underemphasis of such an indication as erysipelas, which certainly deserves more space than it receives in the text. Furthermore, while the contraindications and dangers are rightfully stressed, there is, perhaps, not enough distinction made between the true contraindications, as such, and the dangers of overdosage, which are, really, not contraindications at all, but which are consequent to any form of therapeusis, be it pharmacal or physical. However, to anyone who is looking for a logical exposition of the theory and practice of ultra-violet and infrared therapy, this book will be extremely useful. And if, encouraged by the very fine presentation, the reader desires to delve more deeply into the experimental background of the author's conclusions, the detailed bibliography will serve as a nice starting point toward this still-to-be explored realm of physical medicine.

In view of its painstaking preparation, careful editing, and general dependability, *Light Therapy* is unqualifiedly

recommended to every student and practitioner of medicine.

H. TEVEL ZANKEL.

Popular Book on Diet

APPLIED DIETETICS FOR ADULTS AND CHILDREN IN HEALTH AND DISEASE. By Sanford Blum, M.D. Philadelphia, F. A. Davis Company, [c. 1936]. 408 pages. 8vo. Cloth, $4.75.

This book strictly limits its pages to the description of various diets, and offers a diet for every conceivable disease and syndrome.

A third of it is devoted to dietary for infants and children in both health and disease. It is a serviceable book.

MORRIS ANT.

New Work on Stammering

STAMMERING. By Elsie Fogerty. New York, Greenberg, Publisher, Inc., [c. 1936]. 64 pages. 12mo. Cloth, $1.25.

Miss Elsie Fogerty is well known in speech correction work. The publication under review, however, does not offer any contribution to the field and does not compare favorably with her previous book on the same subject.

The work is divided into four sections —The Development of Stammering in the Child; Curative Work for Young Children; Curative Work at School Age; Self Cure at a Later Age.

Although the book is only sixty-four pages in length, it contains a disproportionate amount of irrelevant and inaccurate material. Under the discussion of the relation of left-handedness to stammering, left-handedness is referred to as a "defect." Following this, the statement is made "the left-hander is a person of great strength of character and rather inclined to rebel against authority." On page twenty-seven, in describing the "t" sound, the author claims it to be made by "the tongue clicking against the teeth." The sound "t" made in this manner is classified as a defective dental "t." The correct sound is produced by the tip of the tongue pressing against the upper alveolar ridge.

The author regards breathing difficulty as the most direct cause of stammering, and accordingly an overemphasis is given to breathing exercises.

One has to wade through the pages of this book to obtain some bits of information that are really related to stammering.

ISAAC W. KARLIN.

Blanchard's Proctology

A HANDBOOK OF AMBULANT PROCTOLOGY. Offering the Latest Developments of Methods and Technic for Doing Proctologic Work by Office Methods. By Charles E. Blanchard, M.D. Second edition. Youngstown, Medical Success Press, [c. 1937]. 304 pages, illustrated. 8vo. Cloth, $5.00.

In this work on ambulant proctology there is no word in the index about the important subject of constipation. One paragraph on this subject may be found under the chapter on dietetics.

Some of the chapters might well be omitted, such as chapter X, entitled "Some Special Items," and chapter XIV, entitled "My Teaching Service," to make room for more important subject matter omitted.

Neither in the table of contents nor in the index is there any mention of abscess of the ano-rectal region or of proctitis.

The book would benefit by a general reorganization of material and rewriting.

CHARLES GOLDMAN.

Vegetarian Diet

VEGETARISCH FUR ALLE NEUZEITLICHE KUCHE EINSCHL. ROHKOST UND KRANKENDIAT. By Frieda Rausch. München, Otto Gmelin [c. 1937]. 92 pages. 8vo. Cloth, R.M. 2.70.

This little cook book is divided into two parts. I. Food for the healthy, II. Food for the sick. Added to these is an appendix with practical suggestions for cooking. The first part is made up of 269 recipes for vegetable and fruit diets with specific directions for cooking. The second part is prefaced with remarks by Dr. S. Pressel, Bayreuth, and presents many formulae for diets for convalescents and sick people. This book is written by a dietitian of experience, with due degard to the individual's purse and the seasons of the year. It will particularly interest those who are familiar with German cooking and methods.

J. M. VAN COTT.

How to Give an Anesthetic

INHALATION ANESTHESIA. A Fundamental Guide. By Arthur E. Guedel, M.D. New York, The Macmillan Company, [c. 1937]. 172 pages. 8vo. Cloth, $2.50.

Other books on anesthesia carry more of the theory; this monograph, after a short discussion of the principles, takes up the practical administration of inhalation anesthetics. It covers fully and accurately all the stumbling blocks and

dangers in the way of a smooth, safe and successful outcome.

The chapter on ventricular fibrillation is worth considering by any one who has speculated on the cause of sudden death during anesthesia. If this is accepted, along with the excess of adrenin thrown into the blood as postulated by the author, it is a more satisfactory explanation of these disasters than status lymphaticus and other indefinite reasons previously assigned.

We would mark this small book down on the list of prescribed reading for all students of anesthesia.

GEORGE W. TONG.

Brief Popular Presentation

CHRONIC INDIGESTION. A Layman's Handbook. By C. J. Tidmarsh, M.D. New York, Longmans, Green & Company, [c. 1936]. 142 pages, illustrated. 12mo. Cloth, $1.50.

We cannot quarrel with the thought that a book on chronic indigestion for the layman is worthwhile. This volume rather turns out to be a warning guide to the patient as to how the doctor should investigate and treat the ailment. The chapters on Anatomy and Physiology are good. The one on Prevention of Recurrence is excellent. There is too much discussion of the treatment of complications. The reviewer does not believe it necessary or wise to quote living authorities and experimenters to the layman. Too much space is given to methods and diagnosis and controversy as to surgical and medical therapy of ulcer. There are a few statements made which are open to discussion among medical men. The reviewer believes that a good book on Chronic Indigestion for the Layman is still to be written.

BENJAMIN M. BERNSTEIN.

On the Ductless Glands

ENDOCRINOLOGY IN MODERN PRACTICE. By William Wolf, M.D. Philadelphia, W. B. Saunders Company, [c. 1936]. 1018 pages, illustrated. 8vo. Cloth, $10.00.

The author has successfully compiled in one volume most of the present-day knowledge of endocrinology. The subject matter is divided into several sections: anatomy, physiology and disturbances of each gland, clinical consideration of special symptoms, endocrine diagnosis, non-endocrine disorders simulating endocrine symptoms, laboratory methods and endocrine preparations. Each section is supplemented by a summary in outline form of the material covered in the text.

The reviewer differs with the author on several points but differences of opinion are to be expected in a field such as endocrinology. There is an error in the description of the method of Goldzieher and Gordon in the determination of the specific dynamic action of protein. The correct procedure calls for the ingestion of the whites of three hard boiled eggs and not of the entire eggs. The value of the book would have been greatly enhanced by the inclusion of a bibliography.

The book is well written and can be recommended for students and general practitioners as a compilation of the present day knowledge of endocrinology.

MURRAY B. GORDON.

New Books on Electrocardiography

THE FUNDAMENTALS OF ELECTROCARDIOGRAPHIC INTERPRETATIONS. By J. Bailey Carter, M.D. Springfield, Charles C. Thomas, [c. 1937]. 326 pages, illustrated. 8vo. Cloth, $4.50.

This book consists of articles on electrocardiography which the author contributed to the *Journal of the American Medical Association* with some additions and alterations. It is published as an aid to beginners and clearly depicts all the information which can be derived from this method of examination. The subject is presented in a concise manner with key references to articles in which more detailed information is to be obtained on a particular phase. A bibliography at the end lists some of the main contributions to literature of electrocardiography since 1916. The book is mainly of value to those not actually engaged in the field but who merely desire some knowledge of the subject.

J. HAMILTON CRAWFORD.

ELEMENTS OF ELECTROCARDIOGRAPHIC INTERPRETATION. By Louis N. Katz, M.D. and Victor Johnson, Ph.D. Second edition. Chicago, The University of Chicago Press, [c. 1936]. 38 pages, illustrated. 8vo. Paper, $1.00

This small book presents a graphic outline of the more important electrocardiographic abnormalities. It is particularly intended for the beginner but others will also find it to be interesting and helpful. The fourth lead is shown in several

plates both in its normal aspects and as it appears in recent coronary occlusion.

A particularly useful table is given of the characteristics of the normal electrocardiographic cycle, the normal values of the various elements being given, including those of lead four. This latter will save frequent reference to normal standards somewhat scattered in medical journals. The appendix, "Procedure in Reading an Electrocardiogram," consists of description of method, systemic interpretation and clinical significance.

WILLIAM E. MCCOLLOM.

ESSENTIALS OF ELECTROCARDIOGRAPHY. For the Student and Practitioner of Medicine. By Richard Ashman, Ph.D. and Edgar Hull, M.D. New York, The Macmillan Company, [c. 1937]. 212 pages, illustrated. 8vo. Cloth, $3.50.

This small volume presents the fundamentals of electrocardiography in a simple matter. It is one of a number of books which have appeared in recent years all of which give essentially the same facts. It is a book of value only to beginners and from this point of view is adequate. It is beautifully printed and the illustrations are good.

J. HAMILTON CRAWFORD.

BOOKS RECEIVED

Books received for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

THE 1936 YEAR BOOK OF NEUROLOGY, PSYCHIATRY AND ENDOCRINOLOGY. Neurology edited by Hans H. Reese, M.D., Psychiatry edited by Harry A. Paskind, M.D. and Endocrinology edited by Elmer L. Sevringhaus, M.D. Chicago, The Year Book Publishers, [c. 1937]. 800 pages, illustrated. 12mo. Cloth, $3.00.

PROCEEDINGS OF CONFERENCE ON VENEREAL DISEASE CONTROL WORK. Supplement No. 3 to Venereal Disease Information. Washington, U. S. Government Printing Office, [c. 1937]. 154 pages. 8vo. Paper, 15c.

THE OCULAR FUNDUS IN DIAGNOSIS AND TREATMENT. By Donald T. Atkinson, M.D. Philadelphia, Lea & Febiger, [c. 1937]. 142 pages, illustrated. 4to. Cloth, $10.00.

SEXUAL POWER. By Chester T. Stone, M.D. New York, D. Appleton-Century Company, [c. 1937]. 172 pages. 12mo. Cloth, $1.50.

A MANUAL OF RADIOLOGICAL DIAGNOSIS. For Students and General Practitioners. By Ivan C. C. Tchaperoff, M.D. Baltimore, William Wood & Company, [c. 1937]. 256 pages, illustrated. 4to. Cloth, $6.00.

SOURCE BOOK OF ORTHOPAEDICS. By Edgar M. Bick, M.D. Baltimore, The Williams & Wilkins Company, [c. 1937]. 376 pages. 8vo. Cloth, $4.00.

THE AVITAMINOSES. The Chemical, Clinical and Pathological Aspects of the Vitamin Deficiency Diseases. By Walter H. Eddy, Ph.D. and Gilbert Dalldorf, M.D. Baltimore, The Williams & Wilkins Company, [c. 1937]. 338 pages, illustrated. 8vo. Cloth, $4.50.

HANDBOOK OF ORTHOPAEDIC SURGERY. By Alfred R. Shands, Jr., M.D. St. Louis, The C. V. Mosby Company, [c. 1937]. 593 pages, illustrated 8vo. Cloth, $5.00.

ESTUDOS CIRURGICOS. By Eurico Branco Ribeiro. Second series. Sao Paulo, Sociedade Editora Medica Limitada, Caixa Postal, 1574, [c. 1936]. 245 pages, illustrated. 8vo. Cloth.

MEDICAL UROLOGY. By Irvin S. Koll, M.D. St. Louis, The C. V. Mosby Company, [c. 1937]. 431 pages, illustrated. 8vo. Cloth, $5.00.

SYNOPSIS OF PEDIATRICS. By John Zahorsky, M.D. Second edition. St. Louis, The C. V. Mosby Company, [c. 1937]. 367 pages, illustrated. 12mo. Cloth, $4.00.

HISTOLOGICAL TECHNIC. A practical handbook for the workers in Histology or Histopathology laboratories, which describes in compact form, improved methods for the preparation of microscopical sections. By Aram A. Krajian. Los Angeles, Aram A. Krajian, 3320 Ganahl Street, [c. 1936]. 217 pages, illustrated. 8vo. Cloth, $3.50.

TRAUMA AND DISEASE. Edited by Leopold Brahdy, M.D. and Samuel Kahn, M.D. Philadelphia, Lea & Febiger, [c. 1937]. 613 pages, illustrated. 8vo. Cloth, $7.50.

NATIONAL HEALTH SERIES. Twenty volumes, some completely revised, the others published for the first time. Prepared under the auspices of The National Health Council and written by leading health authorities. ADOLESCENCE by Maurice A. Bigelow, Ph.D.; HOW TO SLEEP AND REST BETTER by Donald A. Laird, Ph.D.; LOVE AND MARRIAGE by T. W. Galloway, Ph.D.; EXERCISE AND HEALTH by Jesse F. Williams, M.D.; FOOD

You may obtain any of the books reviewed in this department by sending your remittance of the published price to Book Department of the MEDICAL TIMES, 95 Nassau Street, New York, N. Y.

FOR HEALTH'S SAKE by Lucy H. Gillett, B.S.; HEAR BETTER by Hugh G. Rowell, M.D.; CANCER by Francis C. Wood, M.D.; DIABETES by James R Scott, M.D.; THE EXPECTANT MOTHER AND HER BABY by R. L. DeNormandie, M.D.; TAKING CARE OF YOUR HEART by T. Stuart Hart, M.D.; THE HEALTHY CHILD by Henry L. K. Shaw, M.D.; THE COMMON COLD by W. G. Smillie, M.D.; THE COMMON HEALTH by James A. Tobey, Dr.P.H; WHAT YOU SHOULD KNOW ABOUT EYES by F. Park Lewis, M.D.; TUBERCULOSIS by H. E. Kleinschmidt, M.D.; WHY THE TEETH by Leroy M. S. Miner, M.D.; YOUR MIND AND YOU by Geo. K. Pratt, M.D.; STAYING YOUNG BEYOND YOUR YEARS by H. W. Haggard, M.D.; THE HUMAN BODY by Thurman B. Rice, M.D.; VENEREAL DISEASES by William F. Snow, M.D. New York, Funk & Wagnalls Company, [c. 1937]. 16mo. Cloth, 35c per copy.

THE LITTLE THINGS IN LIFE. The Vitamins, Hormones, and other minute essentials for health. By Barnett Sure, Ph.D. New York, D. Appleton-Century Company, [c. 1937]. 340 pages. 8vo. Cloth, $2.50.

LIFE AND DEATH. The Autobiography of a Surgeon By Andrea Majocchi. Translated by Wallace Brockway. New York, Knight Publications, [c. 1937]. 300 pages. 8vo. Cloth, $2.75.

WHY WE DO IT? An Elementary Discussion of Human Conduct and Related Physiology By Edward C. Mason, M.D. St. Louis, The C. V. Mosby Co., [c 1937] 177 pages 8vo. Cloth, $1.50.

THE HUMAN MACHINE. By John Yerbury Dent. New York, Alfred A. Knopf, [c. 1937]. 294 pages. 8vo. Cloth, $2.50

A MEDICAL FORMULARY. By E. Quin Thornton, M.D. Fourteenth edition, thoroughly revised. Philadelphia, Lea & Febiger, [c. 1937]. 363 pages. 16mo. Cloth, $2.75.

CONTRIBUTIONS TO THE MICROSCOPIC ANATOMY OF THE PANCREAS. By Paul Langerhans. Reprint of the German original with an English Translation and an Introductory Essay by H. Morrison, M.D. Baltimore, The Johns Hopkins Press, [c. 1937]. 39 pages. 4to. Paper, $1.00.

DR. BETTERMAN'S DIARY FOR THE YEARS 1868, 1873, 1893, 1909, 1910 Collated from the Old Doctor's journals and edited by Charles E. Blanchard, M.D. Youngstown, Ohio, Medical Success Press, [c. 1937]. 278 pages. 12mo. Cloth, $3.00.

INTO THIS UNIVERSE. The Story of Human Birth. By Allan Frank Guttmacher, M.D. New York, The Viking Press, [c. 1937]. 366 pages, illustrated. 8vo. Cloth, $2.75.

THE METABOLISM OF LIVING TISSUES. By Eric Holmes, M.D. New York, Macmillan Company, [c. 1937]. 235 pages. 12mo. Cloth, $2.25.

OUR CHILDREN IN A CHANGING WORLD. An Outline of Practical Guidance. By Erwin Wexberg, M.D. with Henry E. Fritsch. New York, The Macmillan Company, [c. 1937]. 232 pages. 8vo. Cloth, $2.00.

ARCHAEOLOGICA MEDICA

—Concluded from page 308

a full confession of the imposture in the presence of Manningham, Douglas, the Duke of Montague, and Lord Baltimore, admitting that she had from time to time "conveyed Parts of Rabbets into her Body." Mary was committed to the Bridewell but was never prosecuted. Fourteen years later she was imprisoned for receiving stolen goods. What happened professionally to the credulous medical men involved may be easily guessed.

The reverend clergy took the position that Mary fulfilled the prediction in *Esdras* (*Apocrypha*) that "monstrous women should bring forth monsters." The pamphleteers, corresponding to our tabloid gentry, released a flood of extremely indecent literature. Hogarth made the affair the subject of two of his creations, one of which we have used to illustrate this article.

A curious fact is that during the time that Mary was staging her stunt in London she was on public exhibition. That is, which she was simulating the pains of labor in the presence of the mob, as many eyes as possible looked for the emergence of rabbits. We submit that the publicity methods of today have fallen behind.

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(Lengthy eighteenth century titles somewhat abbreviated.)

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4. Brathwaite (T.): Remarks on a short narrative of an extraordinary delivery of rabbets. London, 1726.
5. Douglas (J.): An advertisement occasioned by some passages in Sir R. Manningham's diary, lately published. London, 1727.
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7. Manningham (Sir R.): An exact diary of what was observed during a close attendance upon Mary Toft, the pretended rabbet-breeder of Godalming in Surrey. London, 1726.
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10. Seccombe (T.) [Biography]: Dictionary National Biography, London: 56:435, 1898.
11. Rabbit-breeding—The woman of Godalming: Practitioner 68:560, 1902.
12. Wallace (Arthur J.): Mary Toft and her delivery of "rabbets": an obstetrical imposture. Liverpool Medico-Chirurgical J. 62:254 (July) 1912; 1 plate.

Clinical Notes

—Concluded from page 290

In our series four cases had exploration and drainage only. Three of these recovered and one died. The two cases in which the perforation was repaired died. In view of the results in this rather limited series it would seem that the proper procedure would be to explore and drain only. We believe, however, that these cases fall in one of two groups. The first is the early case with a minimum of local peritonitis. Here the perforation should be closed if accessible, and of course drained. The second is the group of late cases where treatment of the peritonitis by drainage is of much more importance than attempting to close the perforation which caused it.

Literature

1. Rankin, F. W., Bargen, J. A., and Buie, L. A., The Colon, Rectum and Anus, W. B. Saunders Co.; 1932, p. 21.

Cultural Medicine

—Concluded from page 307

ters were collected from various libraries by Dr. Robert H. Halsey and published in 1936.

Conclusions

WE believe the foregoing statements show definitely how England and Jenner were destined to devise the epoch-making method of immunization with cowpox, considered to be the most important contribution to mankind made in the eighteenth century.

It is most gratifying to read of the wide acceptance and adoption of Jenner's work in the face of strong opposition and to know that he lived to have the glory and satisfaction of world recognition.

306 PARK PLACE.

Contemporary Progress

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a fixation forceps; if any fibers or tissue remain, the entire surface occupied by the head may be curetted. When this procedure is completed, there is left an opening into the body of the pterygium; oil can be seen oozing from this opening, and excess oil should be expressed by pressure on the distended growth. The bandage is then applied; when this bandage is removed in a few days, the corneal wound is found to be covered with epithelium, and the body of the pterygium is flattened. The distention of the pterygium produced by the injection of iodized oil shows that it is a loose tissue growth; the oil "insinuates" itself into this loose tissue and excites a mild inflammation of the lymphoid type, and thus causes a flattening of this tissue. The iodized oil is non-irritating and even appears to have an analgesic property.

COMPULSORY HEALTH INSURANCE AND DISEASE CONTROL

The death rate, says Dr. Frederick L. Hoffman, is the ultimate test of skill and attention in medical practice. Dr. Hoffman finds that compulsory health insurance encourages public dependence increases bureaucracy and burdens of taxation. But worst of all, he says, it lowers the standards of medical practice, hinders medical progress and brings about the regimentation of the medical profession to virtually the standard of a labor union.

NUTRITION AND THE PUBLIC HEALTH

Nutrition reaches into almost every field of public health activity. Its place can no longer be questioned. Just as people have been taught to look to the health officer for the prevention of infectious diseases, they will have to be taught to look to the health officer for the prevention of dietary diseases.

—W. Sebrell, of the National Institute of Health.